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ABSTRACT

This document is intended to teach the riders of off-highway vehicles (OHVs) how to ride safely and legally on Utah's public lands and how to take care of the places in which they ride. OHVs are all-terrain vehicles (ATVs), off-highway motorcycles, and snowmobiles. Receiving a passing grade on the final test and in an associated course on driving skills results in an education certificate from the Utah Division of Parks and Recreation. The first eight chapters of the workbook are called the pre-ride module and are a general introduction to all OHVs. These chapters explain the types of OHVs, what parents should consider when deciding whether to permit their child to ride an OHV, applicable laws and responsibilities, environmental awareness, safety equipment, getting ready to ride, being in control, and survival emergencies. Separate modules cover skills and information particular to ATVs, snowmobiles, and off-highway motorcycles. A short multiple-choice quiz follows every module. A glossary, answer key for the quizzes, and a six-item bibliography conclude the publication. (CML)

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UTAH'S OFF-HIGHWAY VEHICLE EDUCATION STUDENT WORKBOOK

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Chapter 5 - Safety Equipment
Chapter 6 - Getting Ready to Ride
Chapter 7 - Being in Control
Chapter 8 - Survival and Emergencies

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- Larry Mullins for the additional illustrations.

- Neal Lein for the many hours spent preparing this workbook on desktop publishing.

WELCOME

Welcome to the Utah Division of Parks and Recreation Off-Highway Vehicle Education Course.

Riding off-highway vehicles (OHVs) is very popular in Utah. As more people start riding, the chance for accidents goes up. In this course, you will learn how to ride your OHV safely and legally. You will also learn how to take care of the places where you ride. This program will help you use OHVs the right way, making your sport fun and safe.

This workbook includes:

1. **Preride Module:** This classroom module is a general introduction to all OHVs. It covers the rules you must obey to protect yourself and others. Preride teaches you about where and how to ride your OHV safely. *You must pass the Preride Module final test with a score of 70 percent.*

2. **ATV, Snowmobile, Off-Highway Motorcycle Modules:** These three sections teach you range course skills for ATVs, snowmobiles, and off-highway motorcycles. Study the section about the OHV you plan to drive. Quizzes will not be graded, but they will help you with the range course exercises.

3. **Range Course:** This course teaches driving skills. It is taught outdoors. *You must score 70 percent or better to pass the range course tests.*

PRERIDE MODULE

7

CHAPTER 1

Types of Off-Highway Vehicles

Off-highway vehicle, or OHV, is a broad term for all off-highway vehicles. OHV means any motorcycle, all-terrain type I vehicle, all-terrain type II vehicle, or snowmobile. This chapter explains the more popular OHVs.

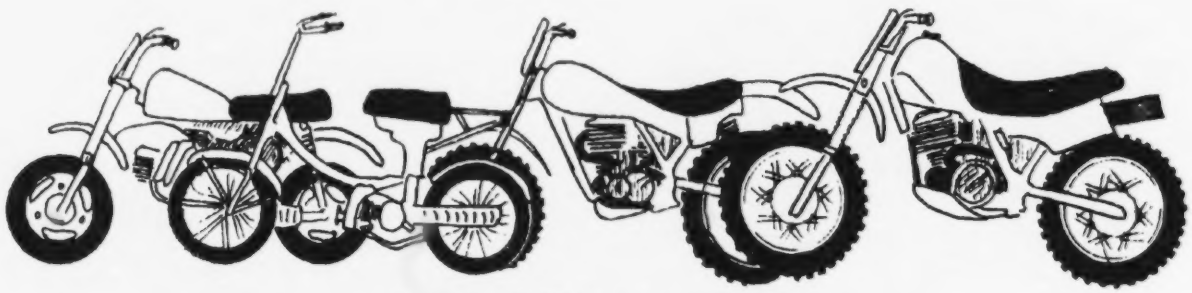
Motorcycles

Motorcycles have a saddle where the driver sits, and not more than two tires. Some motorcycles are bigger and more complex than others. The most popular styles for young operators are the minibike and the trail bike.

Trail bike: The trail bike is also called an enduro or dual purpose bike. It is built like the competitive motorcycle, but it has lights and a horn, and it runs more quietly. The engine runs at low RPMs but is also capable of high torque. A trail bike has a wide range of gears and operates at different speeds. Sizes range from 100 to 1,000 cc engines. The most popular are 175 to 600 cc engines. The variety of engine sizes, gears, and speeds makes the trail bike a good choice for off-highway use.

Trials bike: "Trials" means some type of special difficulty. The trial bike is very lightweight. It has a low-RPM, high-torque engine. A trials bike is built to climb over logs and rocks.

Motocross bike: This bike has a high-RPM engine and a narrow range of power. It is designed for racing.



Examples of off-highway motorcycles.

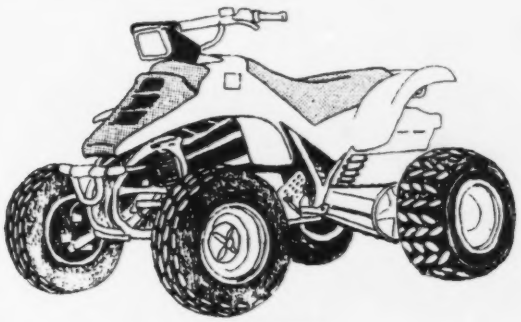
Minibike: A two-wheel minibike is the smallest of all OHVs. It has all the features of a full-size motorcycle, but it is smaller. The front and back wheel rims are less than 10 inches across. The distance from the front to the back wheel is less than 40 inches. The seat is less than 25 inches above the ground.

Competitive motorcycle: This trail bike is built for off-highway use. It is a racing or competition motorcycle. Popular events are motocross, enduro, and serious trail riding. This motorcycle has a very powerful engine up to 600 cc.

On-Highway (Street) motorcycle: This bike has very little space between the wheels and fenders. It is much heavier than other bikes. The exhaust system is mounted low on the frame. It is not a good choice for off-highway use.

All-terrain type I vehicle (ATV)

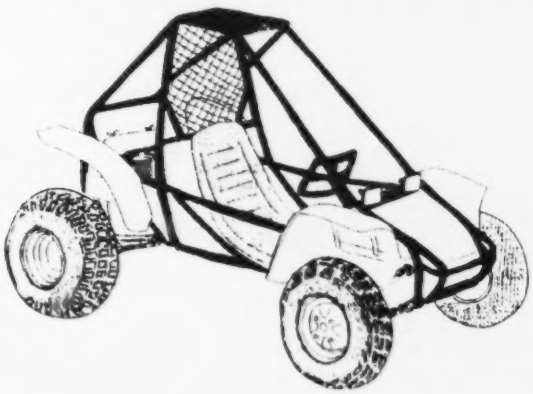
A type I ATV is 50 inches wide or less, weighs 700 pounds or less, travels on three or more low-pressure tires, has a seat that the driver straddles, and can travel over unimproved roads. *Under no circumstance should type I ATVs be driven on pavement, or carry passangers.*



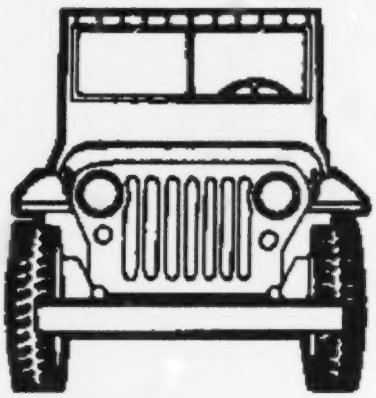
Type I ATV

All-terrain type II vehicles

Type II includes Odyssys, jeeps, and dune buggies. They are discussed in the Preride Module. (Although there is no skill module, operators of type II vehicles must complete the Preride Module.) They are enjoyed by people of all ages. Each year thousands of people use them at OHV areas throughout the state, such as Coral Pink Sand Dunes State Park .



Type II (Odyssy)

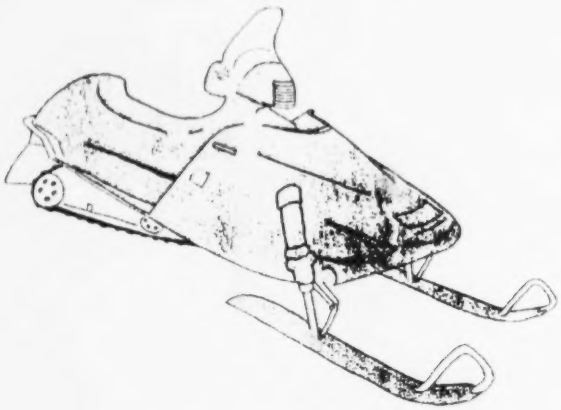


Type II (Jeep)

Some type IIs have four-wheel drive. They are often called 4WDs or 4x4s. This means the engine drives all four wheels. A standard car uses two-wheel drive. A 4x4 can travel where other vehicles can't go.

Snowmobiles

Snowmobiles are designed to travel on snow or ice. They are steered and supported by skis, belts, cleats, runners, or low-pressure tires. These popular OHVs are used by thousands of Utahns. The Division of Parks and Recreation grooms hundreds of miles of trails for snowmobilers.

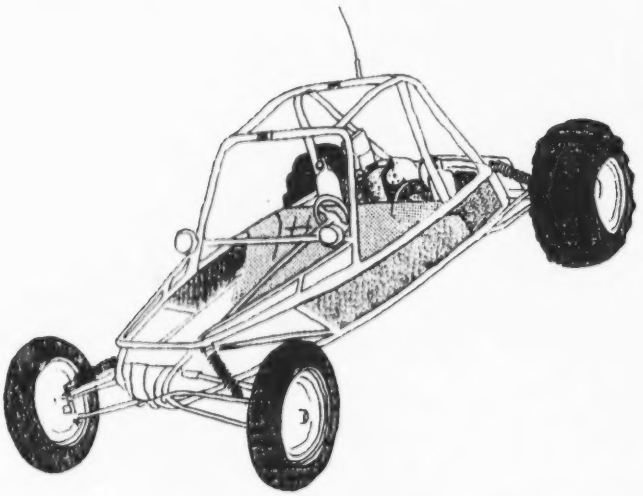


Snowmobile

CHAPTER 1 QUIZ

Circle the correct answer.

1. **To what does the term OHV refer?**
   A. An off-highway vehicle
   B. An on-highway vehicle
   C. A motorhome
   D. A new type of boat
   E. All of the above
2. **Under Utah state law what type of OHV is an ATV?**
   A. Type I
   B. Type II
   C. Motorcycle
   D. Snowmobile
3. **What is a dune buggy or an Odyssy?**
   A. Type I
   B. Type II
   C. Motorcycle
   D. Snowmobile
4. **This type of OHV is very popular in Utah. It is capable of traveling over snow or ice.**
   A. Skis
   B. Sled
   C. Snowmobile
   D. Car
5. **Which of these are considered a type of off-highway motorcycle?**
   A. Minibike
   B. Trail bike
   C. Motocross bike
   D. Competitive motorcycle
   E. All of the above



Type II (Dune buggy)

10

CHAPTER 2

The Family and OHVs

Parents, your child is about to start an adventure in safety. Riding an OHV is lots of fun, but remember: *OHVs are not toys.* Each OHV handles a little differently and requires learned skills. As with any vehicle, there are safety risks involved.

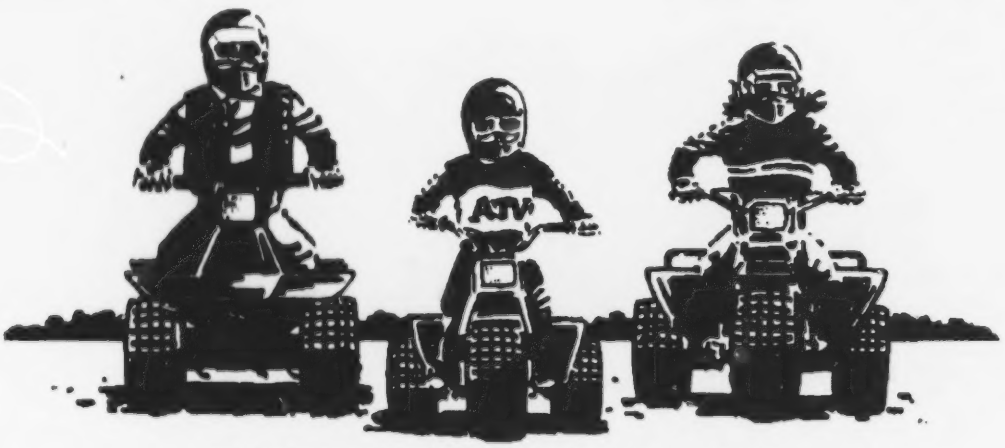
OHVs are not toys.

Your child's safety will depend on your commitment to *always* take a safety-first approach to OHV riding. Learning and using proper techniques and avoiding unsafe situations are essential.

It is your responsibility to make sure that your child operates his or her OHV properly and safely and uses the proper safety equipment while riding.

Deciding whether or not your child is ready to ride an OHV is a decision you must make. Do not permit your child to ride an OHV if you have any doubt that he or she can do so safely. The following is a list of questions you should ask yourself:

- Is my child ready to drive an OHV? Do not let your child drive an OHV if you have any doubt about his or her mental or physical readiness.
- Have I read the owner's manual and reviewed it with my child?
- Is my child's OHV the right size for him or her?
- Have I inspected the OHV and maintained it according to the owner's manual?
- Does my child wear proper protective gear?
- Has my child learned to locate the OHV controls without looking at them? Does he or she know how to operate them correctly?



It is important that children ride the right size OHV.

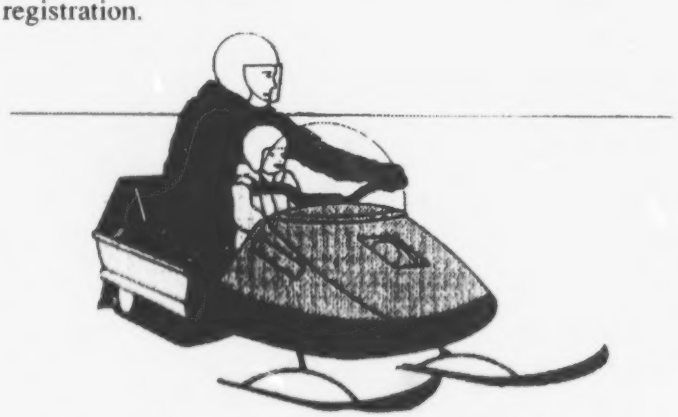
- Have I checked the area where my child will ride? Is it safe?
- Does my child know that he or she should not carry a passenger unless the OHV is designed for that purpose?
- Have I stressed to my child the importance of keeping feet on the footrests?
- Does my child know that he or she must always ride off-highway?

If you feel your child is ready to take the OHV education course you must provide the instructor with a signed participant waiver form at the time of registration.

Students, your parents have to decide if you are ready to ride an OHV. They will be looking for these things:

- Are you big and strong enough?
- Do you follow your parents' directions?
- Do you make good, safe decisions?
- Can you react properly when you see something that could cause you to have an accident?

You are now ready to take this course if you answer yes to these four questions.



A father explains the controls to his child.

CHAPTER 2 QUIZ

Circle the correct answer.

1. **All OHVs handle the same.**
   A. True
   B. False
2. **Before you are ready to ride, parents' must decide that you are:**
   A. Big and strong enough.
   B. Able to follow your parents' directions.
   C. Able to make good, safe decisions.
   D. Able to avoid an accident through properly reacting to what you see.
   E. All of the above.
3. **What should you do before riding your OHV?**
   A. Read the owner's manual
   B. Wear proper protective gear
   C. Know how to overhaul the engine
   D. All of the above
   E. Answers A and B
4. **OHVs are not toys.**
   A. True
   B. False

CHAPTER 3

Laws and Responsibilities

In 1971, the Utah Legislature passed the *Utah Off-Highway Vehicle Act* to protect people, property, and the environment. A law passed in 1987 requires OHV education for all operaters eight through 15 years of age who use public lands. Public lands are lands controlled by federal, state, or local governments. The Division of Parks and Recreation help to carry out and enforce these laws.

About 78 percent of the lands in Utah are public lands.

To drive your OHV on public lands, you must have one of the following: 1) a valid motor vehicle driver's license, 2) a Division of Parks and Recreation OHV education certificate, or 3) an OHV education certificate from another state or province of Canada that is recognized by the division. Children under eight years of age may not operate an OHV on public lands or roads.

You will receive an education certificate after you pass this course. You must carry your certificate with you when driving on public lands or roads. Have your parents carry their copy in case you lose yours. You may want to carry your certificate with your OHV registration card.

Education course requirements:

- Students must have a parent or an adult responsible for that student attend at least the first hour of the Preride Module and all of the skills module.
- Each student must give the instructor a participant waiver form signed by a parent or legal guardian at the time of registration.
- A student taking the skills module must be able to sit on the machine with a slight bend to the knees while feet are on the footrests.
- All students participating in the skills module must wear the following safety equipment: properly fitted safety-rated helmet, safety-proven eye protection, gloves, boots that cover the ankle, and clothing that covers the arms and legs.
- A student must receive a score of 70 percent or better on the Preride Module before taking a skills module. The student must score at least 70 percent on a skills module to be certified.

A student is tested in the ATV Skills Module.

- A student failing any module may take the test again after seven days. If that student fails a second time, he or she must then retake the entire module.

Persons 17 years of age and under must wear protective headgear while operating an OHV on public lands or roads. All riders, no matter what their age, *should* wear protective headgear.

Operaters under 18 must wear protective headgear.

The agency managing the land where you drive your OHV is not liable for your safety.

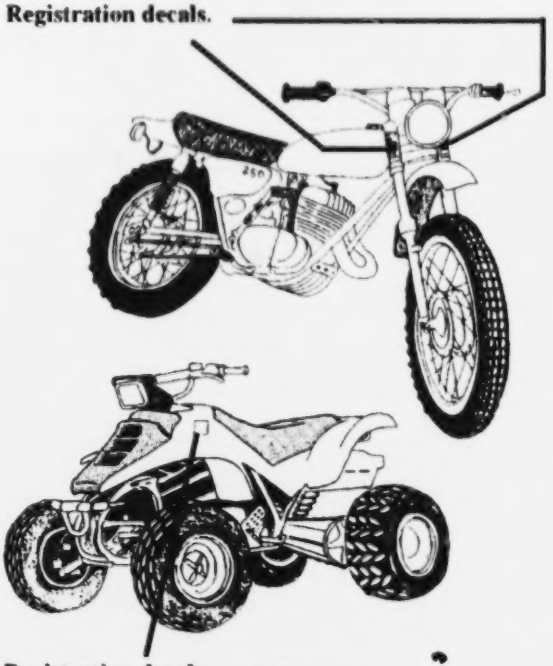
A state park ranger gives information about the area.

If you are riding your OHV and a state park ranger or other police officer signals you to stop, do so. It is against the law to flee from an officer.

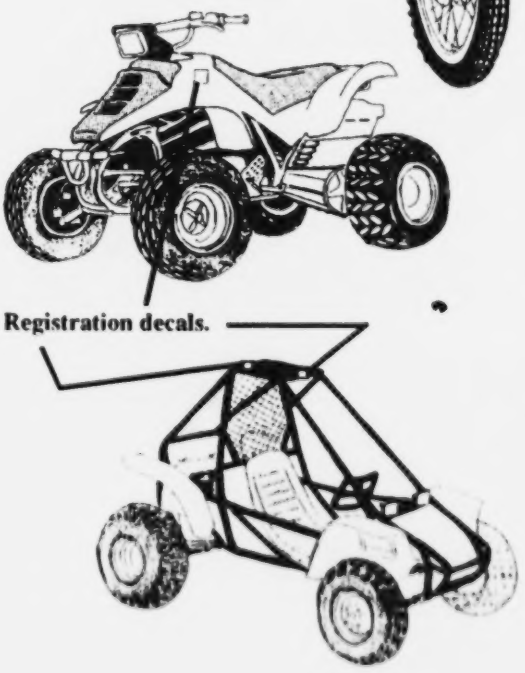
OHV registration

All OHVs must be registered when being transported or operated on public lands or roads. Registration decals must be displayed as follows: 1) On snowmobiles, a base decal is mounted on both sides of the hood or pan; 2) on motorcycles and type I ATVs (three- and four-wheelers), the base decal is mounted on both sides of the fork or fuel tank; and 3) on type II (dune buggies and Odyssys), the base decal is mounted on the front and the rear of the vehicle. You will get a renewal decal each year you register your OHV. Place the renewal decal over the original base decal. Base decal must stay on the OHV.

Registration decals.



Registration decals.



A currently registered, street-legal motor vehicle does not need to be registered as an OHV. Your OHV probably does not have the same controls and equipment as street-legal machines. For example, street-legal motorcycles have a mirror, turn signal lights, and horn.

Where to ride your OHV

Registered OHVs may be operated on public lands, streets, or highways that are posted open by sign or map. Check with the agency in charge of the area where you plan to ride for special rules.

If you have to cross a road, follow all safety rules.

You may cross highways or roads on your OHV if you do the following:

1. First, come to a complete stop.
2. Look both ways before crossing.
3. Yield to cars.
4. Cross at a right angle.

All freeways and interstate highways are closed to OHVs. Right-of-way portions and areas between travel lanes of freeways are also closed to OHVs.

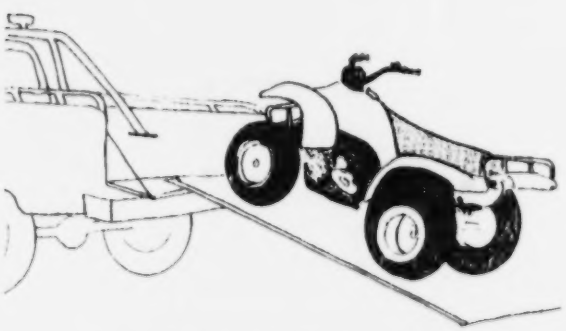
During the winter months, some highways are closed to conventional motor vehicles because of snow. However, these highways may be open to OHVs during the winter.

Some of Utah's secondary dirt roads are open to OHVs and conventional motor vehicles. It is important to be familiar with the following basic rules of the road:

- Always travel on the right side of the road or trail.
- When approaching an intersection, be sure to stop, look in both directions, and then continue through the intersection.
- The vehicle or OHV to your right has the right-of-way to proceed first through an intersection.

Safety first

Your speed and following distance is very important to your safety. Your OHV is smaller than conventional vehicles. This makes it harder for other drivers to see you. Keep a safe distance between you and the vehicle you are following so that you have time to stop if the other vehicle stops suddenly. A good rule is to stay three seconds behind the vehicle in front of you. Speed should be related to road conditions, traffic, and reaction time. If you are riding on a road or trail open to OHVs, use hand signals to let those following you know what you intend to do.

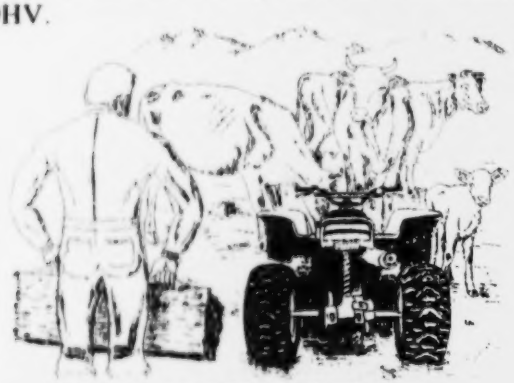


An ATV is unloaded from a pickup.

When loading or unloading your OHV, be sure to pull off the traveled portion of the road or street so you do not cause a problem for traffic or create danger for yourself.

Farm and ranch work

OHVs are used by many Utah farmers and ranchers to herd livestock or travel between fields. These OHVs may be registered as implements of husbandry. However, if the OHV is also used for recreation on public lands, it must also be registered as a recreation OHV.



This farmer uses his ATV to feed cows.

OHV use while hunting

Using OHVs while hunting is becoming popular. The OHV can take hunters into areas where they previously had to walk or ride a horse. It is against the law, however, to shoot a firearm or bow and arrow from an OHV while it is moving or parked. If you carry a gun on an OHV, be sure that it is unloaded and securely fastened in a proper carrying rack.

Other OHV uses

Other uses for OHVs are law enforcement, search and rescue, and utility functions for businesses. You might use your OHV for chores or other domestic tasks. Remember that all the safety tips you learn in this course apply to all OHV uses.

An ATV is used to gather firewood.

CHAPTER 3 QUIZ

Circle the correct answer.

1. **During the deer hunt, it is all right to shoot from your OHV.**
   A. True B. False
2. **Freeways are open to OHV use.**
   A. True B. False
3. **OHVs may cross highways or roads if they do the following:**
   A. Come to a complete stop.
   B. Continue across the highway without stopping.
   C. Drive alongside the highway for a quarter of a mile, then cross.
   D. You may not cross a highway.
4. **Some of Utah's secondary dirt roads are open to OHVs.**
   A. True B. False
5. **What age of operator must wear a helmet when operating an OHV on public lands or roads?**
   A. Eight years and younger
   B. 12 years and younger
   C. 16 years and younger
   D. 17 years and younger
6. **At what age does Utah law require all operators to complete an OHV education course before operating on public lands or roads?**
   A. Six through 15 years of age
   B. Six through 16 years of age
   C. Eight through 15 years of age
   D. Over 16 years of age
7. **Under what age may children not operate an OHV on public lands or roads?**
   A. Under six years of age
   B. Under eight years of age
   C. Under 12 years of age
   D. Under 16 years of age
8. **What requirement must all OHVs meet before being transported or operated on public lands or roads?**
   A. Paid for
   B. Operated slowly
   C. Registered
   D. Unregistered

CHAPTER 4

Environmental Awareness

To be a responsible OHV rider, you must take care of the land where you ride. The environment is the natural and human made things around you. Sometimes these things are dangerous. Trees, large rocks, or abandoned mine shafts can be very dangerous. On the other hand, plants or wildlife may be hurt by how you ride. It is very important to be aware of your surroundings.

Help stop environmental damage. Stay on the trail.

You must have the owner's permission before driving your OHV on private land. If you plan to ride on public lands, get a map of the area from the agency in charge of that land. These maps show 1) areas, roads, and trails open to OHV use; 2) areas where there are restrictions; and 3) areas that are closed to OHV use. Ask OHV dealers and clubs or associations about places to ride your OHV. Also check state maps.

You must watch for other riders, wildlife, other trail users, and trail hazards. It is a good idea to slow down or stop and shut your engine off to allow a horseback rider or hiker to pass. Remember, being *courteous* will help improve the image of OHV riders. Trail

Be courteous to other trail users.

riding can be fun, but riding trails too fast can be dangerous to you and to others. Ride slowly, look ahead, and remember the main rules of OHV trail riding:

- Go slowly.
- Watch for other riders.
- Be courteous.
- Don't chase or harass wildlife.
- Know the rules of the area where you are riding.
- Don't damage the environment. *Be a responsible rider.*

Do not chase wildlife.

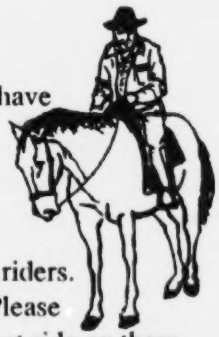
Wildlife

It is against the law to chase or harass wildlife. Roads, trails, and areas are sometimes closed to protect wildlife and their young. If you come across wildlife such as deer, elk, or coyotes while you are riding, do not chase them. Chasing frightens these animals, making them run and burn their fat supply. This can be a serious problem during

the winter months when wildlife need all their stored energy to survive.

Utah law says all OHVs must have mufflers. Quieter OHVs may encourage landowners to open more land to riding. Remember, loud noises frighten animals and annoy people.

Wilderness



Certain areas of the state have been set aside to protect their wilderness qualities. Wilderness areas are specially suited to hikers, backpackers, and horseback riders. They are closed to OHVs. Please respect these lands, and do not ride on them.

Wilderness areas are not always marked, so it is important to know where you are riding. Use a map or ask the agency in charge of that area about any special rules.

Ground conditions

Tundra and sand dunes often have thin layers of soil and delicate plants. Tire tracks scar the landscape, destroy plants, and start channels for erosion.

Erosion is a major environment problem. It is the wearing away of soil and plants by water. Some terrain can be damaged very easily, especially during the wet seasons of the year. Roads, trails, and roadless areas are easily damaged when they are wet.

Avoid low, wet places when it is rainy. Also stay out of swampy areas and bogs where the soil is wet year-round. Ride in areas that have lots of gravel, clay, or sand in the soil.

Sometimes roads, trails, and areas are closed to prevent surface damage or to protect trees or plants. Old roads that are being restored are closed to OHV use. Do not enter closed areas noted on maps or marked by signs, gates, or other barriers. Remember to check with the appropriate land managing agency before riding.

Special lands

Some lands are easily damaged and take years to recover. These lands are sometimes protected by law.

Parts of Utah are very dry and arid. These areas get little rainfall or moisture. Plant life in these areas has taken hundreds of years to grow. If you run over such plants on your OHV, they will die, and it will take nature another hundred years to repair the damage.

Prairie grasslands and alpine meadows are wildlife nesting areas. Leave your OHV behind, and enjoy the wildlife and beauty of these delicate areas on foot.

Utah relies on spring runoff from the mountains for drinking water. Protecting the land around streams and lakes is important to our water supply. Sometimes these lands are closed to OHV use. When watershed areas are open to OHV use, the most important rule to remember is to *ride on the trail.*

Protect watershed areas by staying on the trail.

Grazing lands

Some lands are used for sheep, cattle, and horse grazing. Remember that the noise from your OHV may frighten these animals. Avoid riding near them. Be sure to *close any gate that you open*. This will improve the OHV rider's relationship with landowners.

Littering

Littering is against the law. Litter is ugly and hurts our lands. For example, dumped oil can make its way to small streams, creeks, and spawning grounds, killing fish and plants.

Leave no trace of your visit. Leave no marks along the trail, and leave your campsite clean and natural looking. Take a trash bag and pack out your garbage and the litter that others may have left. Human waste should be buried.

When you leave no trace of your visit, you will be helping preserve the wildland for yourself and others. Remember, your riding habits and attitudes will determine how much riding area will be opened for OHV use.

TREAD LIGHTLY!

T ravel only where motorized vehicles are permitted.

R espect the rights of hikers, skiers, campers, and others to enjoy their activities undisturbed.

E ducate myself by obtaining travel maps and regulations from public agencies, complying with signs and barriers, and asking owners' permission to cross private property.

A void streams, lakeshores, meadows, muddy roads and trails, steep hillsides, wildlife, and livestock.

D rive responsibly to protect the environment and preserve opportunities to enjoy my vehicle on wildlands.

CHAPTER 4 QUIZ

Circle the correct answer.

1. **Which of these marked areas should OHVs *not* enter?**
   A. Closed
   B. Wilderness
   C. Interstate highways
   D. All of the above
2. **To keep a watershed area safe, what is important to remember?**
   A. Ride only on designated trails.
   B. Ride off the trail.
   C. Ride only in wet areas.
   D. All watersheds are open to OHVs.
3. **This device helps make your OHV quieter.**
   A. Muffler
   B. Brake
   C. Throttle
   D. Horn
   E. Tires
4. **What should you remember when riding your OHV on land where livestock is present?**
   A. It is OK if you don't ride too close and frighten them.
   B. It is all right because the noise does not matter.
   C. It is all right if you close gates.
   D. It may be permitted if you have the landowner's permission.
   E. A, C, and D
5. **Littering is against the law.**
   A. True
   B. False
6. **In "Tread Lightly" the letter "D" tells you to:**
   A. Do something.
   B. Do nothing.
   C. Drive responsibly to protect the environment.
   D. Drink.

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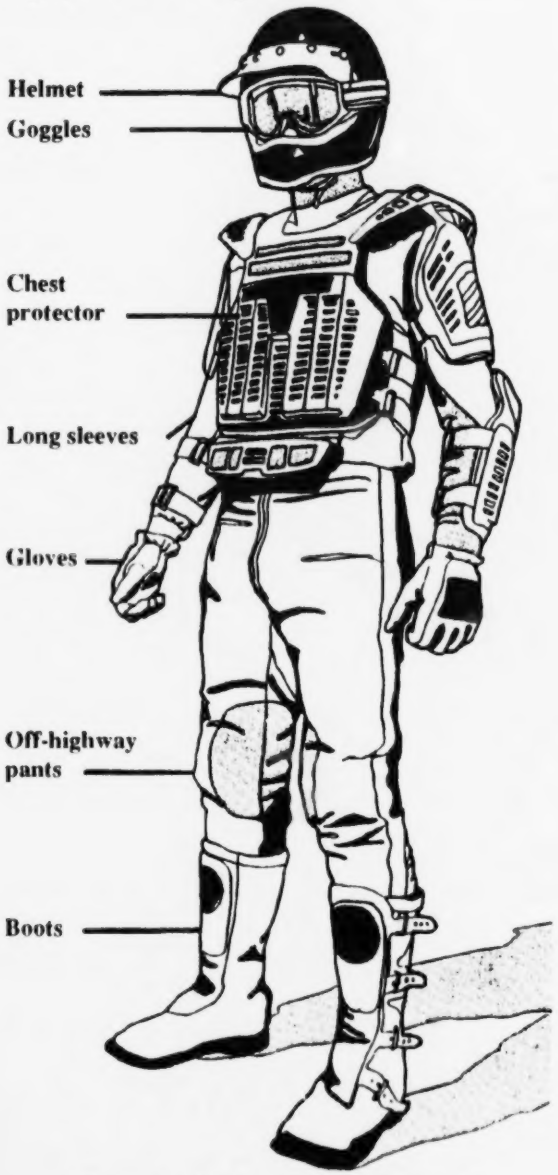
CHAPTER 5

Safety Equipment

Always wear safety equipment when you ride your OHV. Knowing what to wear and how to wear it can make you more comfortable when you ride and reduce the chance of injury in case of a spill.



Example of proper safety equipment.

Helmets are a must!

The helmet is your most important piece of protective gear. A good helmet can prevent serious head injuries. Wearing a helmet does not reduce sight or hearing. Remember, Utah law requires anyone 17 years of age or younger to wear a helmet. All riders *should* wear a helmet.

Helmets work in two ways: 1) The outer shell protects your head from sharp objects, and 2) the inner liner absorbs the shock of a crash. Both the shell and the liner self-destruct in an accident by absorbing the shock of impact. A helmet that has been in an accident can (and should) be replaced. Your head cannot!

The helmet you buy should be safety-rated. Look for stickers on the inside or outside of the helmet from one or more of these agencies: *U.S. Department of Transportation* (DOT), *The Snell Memorial Foundation*, or the *American National Standards Institute* (ANSI).

These agencies judge the safety of helmets according to:

- *Impact* - Will the helmet absorb the shock of an accident?
- *Penetration* - Will the helmet hold up if it hits a sharp object?
- *Retention* - Will the chin strap stay fastened without breaking or stretching?
- *Peripheral vision* - Does the helmet allow you to see 120 degrees to each side? (Most people's peripheral vision is between 110 and 115 degrees.)

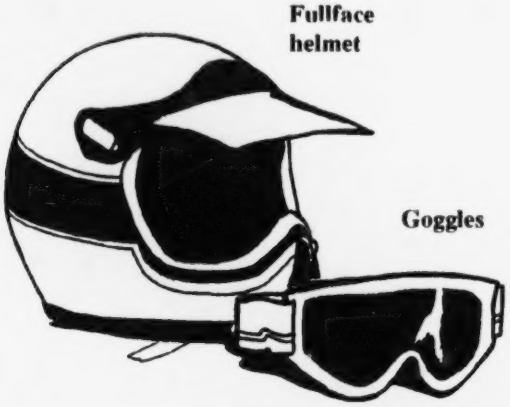
The DOT sticker appears on the outside back, bottom edge of the helmet. All adult-sized helmets have been required to meet the DOT standard since 1980. Helmet dealers must be sure that all the helmets they sell at least meet DOT standards.

The Snell Memorial Foundation sticker is usually found on the inside, lower back of the helmet. This sticker is not required. Snell has been testing helmets since 1969. Its standards have been revised as helmet design and manufacturing techniques have improved.

The 1979 ANSIz90.1 standard is more strict than the DOT standard but less strict than the Snell Foundation standard for impac[illegible] and penetration. The ANSI sticker is usually inside the helmet.

The right helmet for you

Color, style, and price may influence which helmet you buy, but protection should be your first consideration.



The fullface helmet is best because it covers more of your face. New fullface styles are cool and comfortable to wear. The three-quarter helmet doesn't offer the face and chin protection that fullface helmets do, but some riders prefer it. If you choose this style, use a chin guard.

A helmet is the most important piece of protective gear for children. Hockey, football, or skateboard helmets *are not acceptable* for OHV riding. They are not made to protect you while riding a motorized vehicle.

As with any helmet, a child's helmet must fit properly to be effective. Do not use a too-large, adult-sized helmet. Helmets come in children's sizes. Check with your OHV dealer when choosing a helmet.

Chin strap

Always fasten your helmet chin strap snugly. A helmet is of no use if it comes off during a mishap.

Replacing your helmet

Replace your helmet if it has been in an accident. Some helmet manufacturers will inspect and, when possible, repair a damaged helmet. If your helmet has been dropped, there may be damage that you don't see; you may want to have it checked.

Most helmet manufacturers recommend replacing helmets every two to four years. If you see any signs of damage before then, replace it immediately. Fiberglass helmets may crack or break if dropped.

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Why replace your helmet every few years if it doesn't look damaged? Its protective qualities may lessen with use. The padding gets matted down. The chin strap may fray or get loose where it attaches to the helmet. The shell may get chipped or banged. But the best reason to replace your helmet is to take advantage of new and improved safety features. The helmet you buy in a couple of years will be better than the one you have now, even if the cost is about the same.

All helmets made since 1980 should have the month and date they were made stamped on the chin strap. If you can't remember when you bought your present helmet, just check the strap. If there is no date, replace it now.

Caring for your helmet

Follow the manufacturer's directions on caring for your helmet. Use only the mildest soap recommended. *Caution: Avoid any petroleum-based cleaning fluids, especially if your helmet is molded plastic.* Strong cleaning agents can dissolve a plastic helmet and its liners, reducing its protective qualities.

Gloves

Good gloves will keep your hands from getting sore, tired, or cold. They will also protect your hands if you fall or collide. Gloves help you grip the controls. Off-highway style gloves are best for riding ATVs and motorcycles. They are padded over the knuckles for added protection.

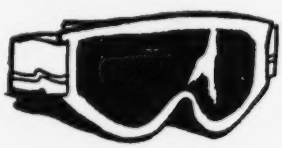
Snowmobiling gloves are usually padded and have linings. The liner material helps keep moisture away from your skin to keep your hands warm. A light cotton liner or inner glove will help keep your skin from freezing if you have to take your outer gloves off. Carry an extra pair of gloves in your winter survival kit.

Boots

Strong, over-the-calf boots provide the best foot protection. Over-the-ankle boots are acceptable. Whichever boot you choose, it must have heels to keep your feet from slipping off the footrests. ATV/ motorcycle boots offer the best protection for feet, ankles, and legs. Insulated boots are a necessity for snowmobile riding.

Boots

Eye protection



Goggles

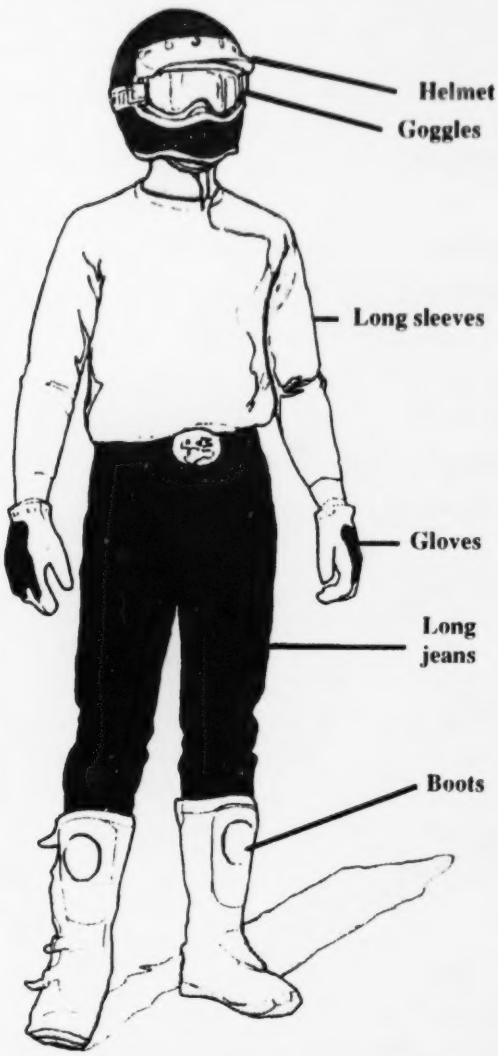
You must be able to see clearly to ride safely. A rock, branch, or even a bug that hits you in the face could blind you. Regular sunglasses will not protect you when riding an OHV. Wear a helmet visor or goggles to protect your eyes. A wind screen on your OHV will also help. Be sure your eye protectors are:

- Free from scratches.
- Built of a hard-coated polycarbonate or bear the standard marking VESC 8 (or V-8) or z87.1 in one corner.

- Securely fastened.
- Tinted for riding on bright days or clear for riding at night. Yellow is best for overcast days.

Clothing

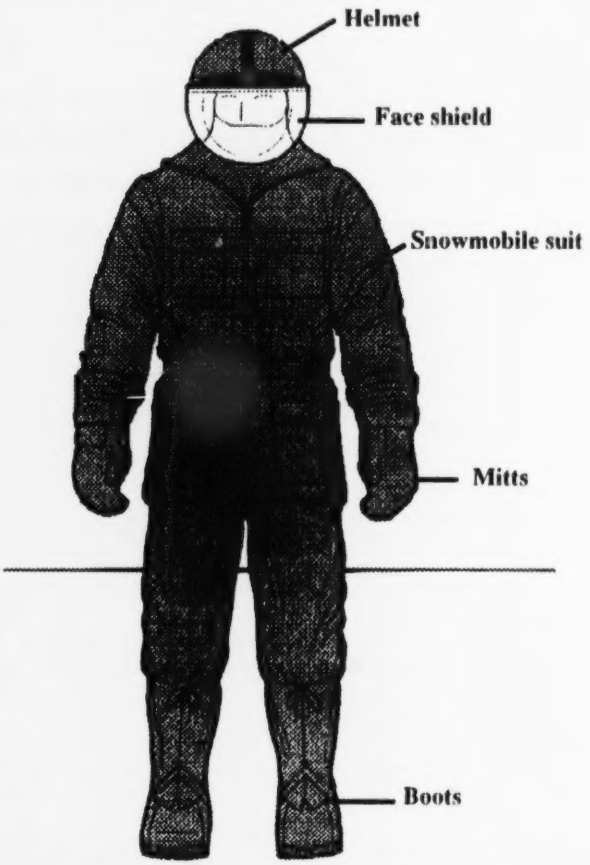
It's important to protect your skin from scratches. A long-sleeved shirt or jersey and long pants are a must. Off-highway riding gear, such as a jersey with shoulder pads and chest protector and pants with knee and shin protectors, provides better protection.



Wear proper clothing on warm days.

It is very important to stay dry and warm when riding in the winter. Even when the thermometer shows the temperature is comfortable, the windchill factor can make it much colder. Windchill is the cooling power of cold air on your body at different wind or OHV speeds. For example, let's say the temperature on a calm day is 10 degrees above zero. If you are riding your OHV at 10 miles per hour, the windchill temperature is nine degrees below zero! There is a windchill chart at the end of this chapter.

Snowmobile suits are perfect for OHV winter riding. They have a waterproof outer shell. The inner lining has several lightweight layers. The outer layer should be loose-fitting. If you plan to ride at night, sew reflective strips on your outer clothes or wear reflective clothing.



Winter riding requires warm clothing.

WINDCHILL CHART

Actual thermometer reading ° F

Estimated Wind Speed MPH	Equivalent temperature °F										
	50	40	30	20	10	0	-10	-20	-30	-40	-50
Calm	50	40	30	20	10	0	-10	-20	-30	-40	-50
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57
10	40	28	16	4	-9	-21	-33	-46	-58	-70	-83
15	36	22	9	5	-18	-36	-45	-58	-72	-85	-99
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125
35	27	11	-4	-20	-35	-49	-67	-83	-98	-113	-129
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132

Wind speeds greater than 40 MPH have little additional effect

Little danger for properly clothed person

Increasing danger

Great danger

Danger from freezing of exposed flesh

CHAPTER 5 QUIZ

Circle the correct answer.

1. **What is the most important piece of safety equipment for an OHV rider?**
   A. Helmet
   B. Gloves
   C. Boots
   D. Chest protector
2. **Good gloves will do this.**
   A. Prevent your hands from getting sore
   B. Protect your hands
   C. Prevent your hands from getting cold
   D. All of the above
3. **What is the best article of clothing for staying warm on a winter ride?**
   A. Pair of socks
   B. Sweater
   C. Snowmobile suit
   D. Thermal underwear
4. **What does the windchill factor indicate?**
   A. The cooling power of air
   B. Wind over frozen ice
   C. Cold snow
   D. The winter season

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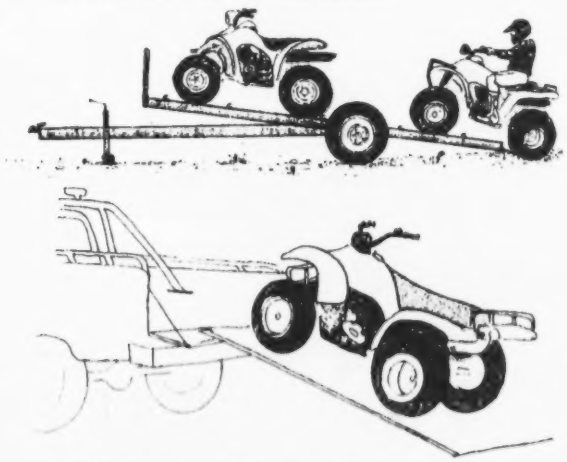
CHAPTER 6

Getting Ready to Ride

If you must haul your OHV to the area where you plan to ride, three steps are necessary:

1. Load and secure OHV on a trailer or in a truck.
2. Transport OHV to riding area.
3. Unload OHV at trailhead.



OHVs are loaded on a trailer and truck.

Loading your OHV

Most OHVs are transported on a trailer or in the bed of a pickup truck. A tilt trailer makes loading and unloading easier. When using a flatbed trailer or the bed of a pickup truck, it is best to use a loading ramp.

Load your OHV on a pickup truck or flatbed trailer by placing a three-to-four-foot sloping ramp on the back of the pickup bed or trailer. Before driving your OHV up the ramp, test the brakes. Slowly drive your OHV up the ramp into the bed of the truck or trailer. Keep your hand or foot on the brake lever and be ready to stop your OHV when it is in place. Lock the brake or hold it in place until you can shut off the engine. Be careful not to over throttle when loading your OHV.

Once the OHV is on the trailer or truck bed, secure it with tiedown straps. If you are using a portable loading ramp make sure it is loaded and tied down.

When towing a tiltbed trailer, check the safety pin and trailer hitch to make sure they are fastened securely. All trailers must have a safety chain connected to the towing vehicle.

Stop occasionally while you are hauling your OHV to check the tiedowns. Make sure that your truck or trailer has brake and tail lights and that all lights are working.

Unload your OHV by dragging it forward or backward by hand. Be sure not to pull the machine on top of you. Some trailers have a front ramp so you can drive your OHV off the trailer.

Preride checklist

Before heading down a trail on your snowmobile, ATV, or motorcycle, you will need to do a preride inspection. The following checklist is called **T-CLOC**. The name helps you remember which equipment to check.

T-CLOC

T - Tires and wheels or tracks

C - Controls and cables

L - Lights and electrical systems

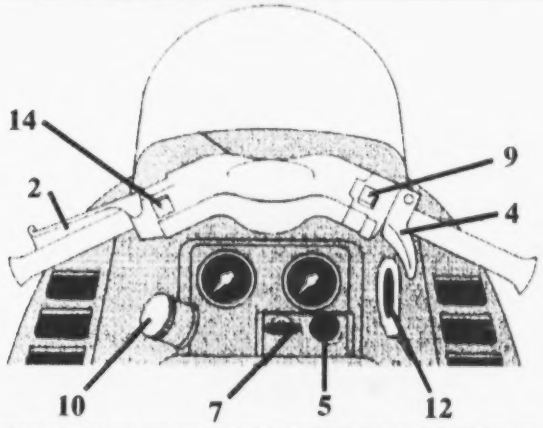
O - Oil and fuel (oil injection)

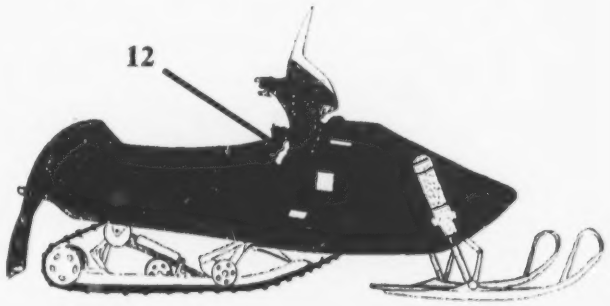
C - Chassis, chain, and drive shaft or belt

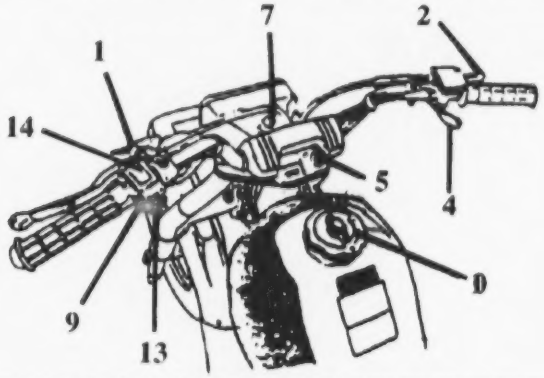
Know your controls

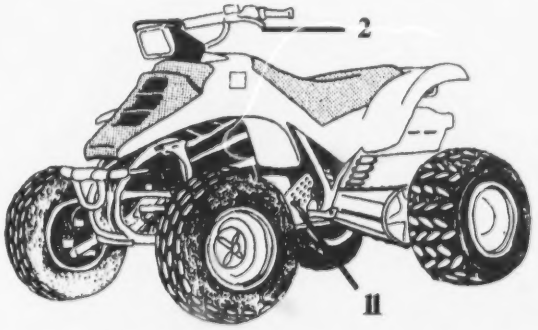
Identify these controls (if equipped):

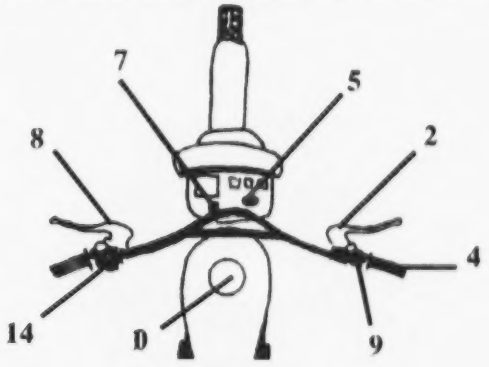
1. Parking brake
2. Hand brake lever (s)
3. Foot brake lever or pedal
4. Throttle
5. Ignition switch
6. Fuel supply valve
7. Choke (primer)
8. Clutch
9. Engine stop/kill switch
10. Gas cap/tank vent
11. Shift lever
12. Starter (pull, kick, electric)
13. Light on/off switch
14. Light hi/lo switch

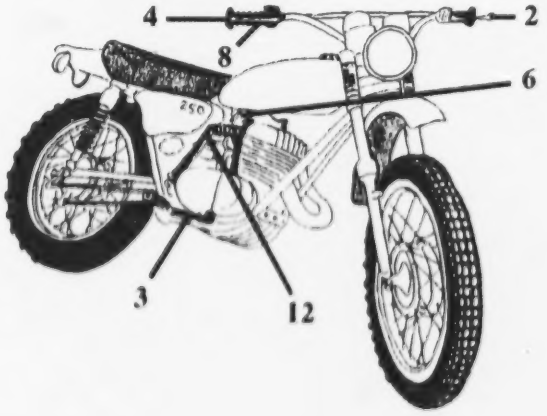












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Starting your ATV

To remember how to start your ATV, memorize the **BONE-C** process:

B - BRAKE	Parking brake set
O - ON	Ignition and fuel on
N - NEUTRAL	ATV in neutral (if manual transmission)
E - ENGINE	Stop/kill switch in run/on or start position (check your owner's manual for your model)
C - CHOKE	On (for cold engine only)

Starting your off-highway motorcycle or snowmobile

To remember how to start your motorcycle or snowmobile, memorize the **FINE-C** process:

F - FUEL	Make sure fuel is on
I - IGNITION	Ignition on
N - NEUTRAL	Machine in neutral
E - ENGINE	Stop/kill switch in run/on or start position (check your owner's manual for your model)
C - CHOKE	On (for cold engine only)

Things to remember

If you are doing winter OHV riding, change your transmission oil to a lighter weight. If your OHV is liquid cooled, be sure your antifreeze/water is mixed to the proper 50/50 solution recommended by all manufacturers.

Many small OHVs have a hand lever near the left hand grip which operates the rear brake. Some OHVs also have a foot pedal on the right side which operates the rear brake. Many have a front brake lever near the right hand grip. Refer to the owner's manual for your OHV's correct brake control location.

Set your OHV parking brake before you start the engine, while you are transporting your OHV, and when your OHV is parked. Look in your owner's manual for the type of parking brake on your OHV.

The throttle controls on ATVs, motorcycles, and snowmobiles are all different. The basic principles, however, are the same. Advance the throttle to make your OHV go faster. Ease back on the throttle to slow it down. Let off of the throttle and use the brakes to slow the OHV down quickly.

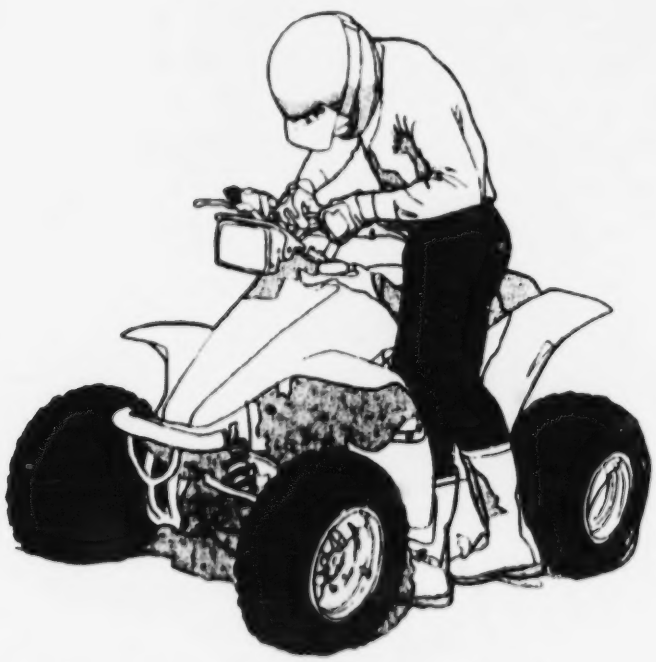
Use the engine stop/kill switch during normal and emergency stops. Remember to turn off the ignition key or switch. This will keep your battery from running down. Develop the habit of using the emergency stop/kill switch. Its use will then be natural when you need to make an emergency stop.

Check for equal tire pressure.

CHAPTER 6 QUIZ

Circle the correct answer.

1. **What does T-CLOC refer to?**
   A. A preride inspection
   B. A starting procedure
   C. A riding strategy
   D. None of the above
2. **BONE-C or FINE-C refers to what?**
   A. A preride inspection
   B. Starting procedures
   C. Riding strategies
   D. None of the above
3. **This control will make your OHV go faster.**
   A. Choke
   B. Turbo switch
   C. Light switch
   D. Throttle
4. **What should you be sure of before transporting your OHV on a trailer?**
   A. OHV is secured with tiedowns.
   B. Trailer safety pin and chain are secure.
   C. The trailer lights are working.
   D. All of the above
5. **What do you push if you need to stop your OHV's engine?**
   A. Stop/kill switch
   B. Shift pedal
   C. Hand brake
   D. Foot brake



Check the controls and cables for T-CLOC.

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CHAPTER 7

Being in Control

You want your OHV ride to be fun and exciting. You do not want it to be dangerous. Have a great time, but *stay in control.*

Come down the trail in control.

Plan your ride carefully. Don't start down a trail that is too difficult. Be careful when you go from a shaded to a sunny trail. Ruts or rocks can "hide" in the shade, and your eyes may not adjust quickly enough. Gradient lenses can help in these conditions.

Stand up on the footrests when riding through rough terrain. Be ready for oncoming traffic because most trails allow two-way travel.

Many trails are "outsloped" to allow rain to run off. This means your OHV may be "tippy." Keep your weight shifted into the slope.

Never stop just before or after a turn on the trail; pull off the trail when you stop for a break. Be sure other riders can see you.

At night, leave a light on your OHV when you stop so that other riders will see you. Be sure both headlight and tail lamp are working.

Never ride alone. Always ride with others. Let someone know where you are going and when you expect to return.

Watch for signs

Signs tell you about an area. Be sure you can recognize general signs.

The color of the sign gives it special meaning.

Red means stop. It can also tell you that a certain traffic move is not allowed.

Black on white indicates specific traffic laws. Speed limit and parking signs use black on white.

Yellow means use extra caution.

Orange is for highway construction and maintenance. Workers are usually present. It is also used to mark trails and show changes in trail direction.

Blue, green, and brown are used for all other general information signs. They may indicate services, points of interest, and upcoming exits or towns.

It is important to recognize the shapes of signs. Learn the following signs by their shapes.

Different shapes of signs.

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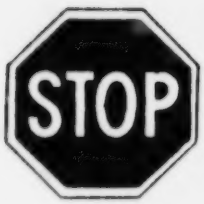
TRAIL SIGNS

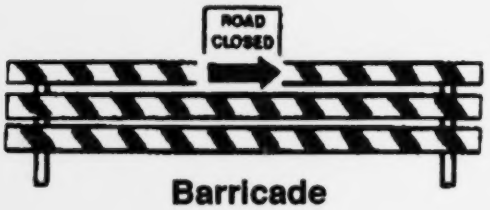


Stop

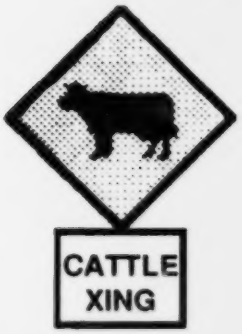
Yield

Railroad Warning

School Warning



Barricade



Warning Signs

SYMBOLS

TWO-WHEEL MOTOR VEHICLE

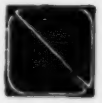
HIGH CLEARANCE VEHICLE 4X4 & PICKUP

SNOWMOBILE

OPEN ROUTE

SEDAN

ATV



Symbol with RED SLASH indicates activity not allowed. YELLOW SLASH indicates activity not recommended.

TRAVEL MANAGEMENT POSTER

NATIONAL FOREST ROUTE MARKERS

Roads maintained for LOW clearance vehicles.

Roads maintained for HIGH clearance vehicles

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Private property signs are also important for you to obey - *watch for them.*

Watch for private property signs.

Know where you are

Know the area where you are riding. Choose places where you can ride safely. Stay on existing trails. Be aware of dangerous slopes and impassable swamps. Watch for people, sharp bumps, holes, ruts, obstacles, and wildlife.

Read the trail as you ride. Look ahead as you travel, and know what's coming. Be ready to react to a hazard before you get to it. As you approach a hazard, you will be aware of it and still be able to look ahead for other obstacles. Adjust your speed to trail conditions and visibility.

Scan the trail for hazards.

A good rider not only handles the machine well, but also rides safely and avoids risky situations. Remember the **SIPDE** process for scanning trails: **S**can, **I**dentify, **P**redict, **D**ecide, and **E**xecute.

S	**Scan the environment**	• Look far ahead (sight steering) • Don't focus on any one obstacle (target fixation)
I	**Identify hazards**	• Visible and hidden • Surface composition • Other trails users, wildlife • Stationary objects
P	**Predict what will happen**	• Handling • Collision or fall
D	**Decide what to do**	• Pick a good line • Good traction • Visibility • Minimum of obstacles
E	**Execute the decision**	• Adjust speed • Adjust technique

Know where you are at all times. Getting lost may not seem very serious if it only means returning home a little late. But if you are stranded and cold, it could be very dangerous. Carry and know how to use a compass and map. You can get maps from the *U.S. Forest Service, Bureau of Land Management, U.S. Geological Survey*, and city, county and state agencies.

Riding in mud or water

Your OHV is equipped to ride through mud, water, and snow. Avoid crossing water where you might damage streambeds, fish spawning grounds, or banks of streams or creeks. This protects both you and the environment.

Water levels can change quickly. Determine how deep water or mud is before riding through it. Grass, weeds, or rocks

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sticking out of the water help you judge its depth. Use a stick to check the water depth. Be very careful around fast moving water.

Be careful when crossing any water.

Never cross a deep stream because your OHV (especially an ATV) may begin to float causing you to lose control. Smaller OHVs can cross water up to eight inches deep, larger OHVs up to 12 inches deep. Snowmobiles should not try to cross water deeper than five inches. For use in water, check your OHV owner's manual.

When you cross a stream or go up and down streambanks, use an established crossing, or ride where the banks have a gradual incline. This will help protect the streambank.

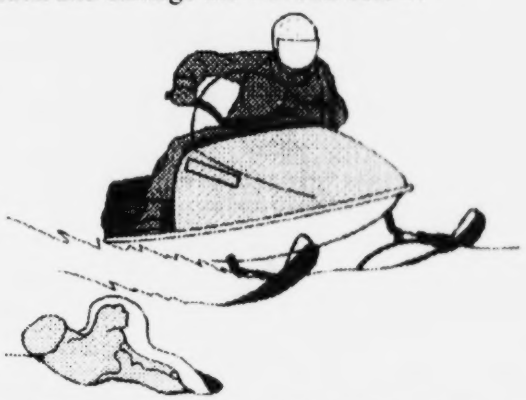
Your body position is very important when riding in mud or water. To maintain balance and traction, shift your weight. You may have to rock your OHV from side to side to work it out of a hole. Remember to use SIPDE as you ride through mud or water. Watch carefully for submerged obstacles.

When riding through mud or water, go at a slow, steady speed; avoid obstacles and slippery rocks. Don't ride too fast. Mud and water can slow the OHV very suddenly and you can lose control. Also remember that your footrests can be slippery when they are wet or muddy. Don't spin your tires. They will only dig a hole and splatter you with mud. You won't travel any faster. Watch for mud buildup on the engine, chain, and the rest of your OHV.

After riding in water, be sure to drain any trapped water by removing the drain screws. (Check your owner's manual.) Clean your OHV with fresh water if you have ridden in or near salt water. Dry brakes after riding through water by applying light pressure to them while riding.

Riding on snow and ice

Riding your ATV or off-highway motorcycle on firm snow is great fun. However, riding in soft snow, can cause problems. Snow can form a thermal blanket over the soil below, keeping it from freezing. If you go through the snow layer, you can get stuck and damage the wet soil below.



Get permission before riding on farmland.

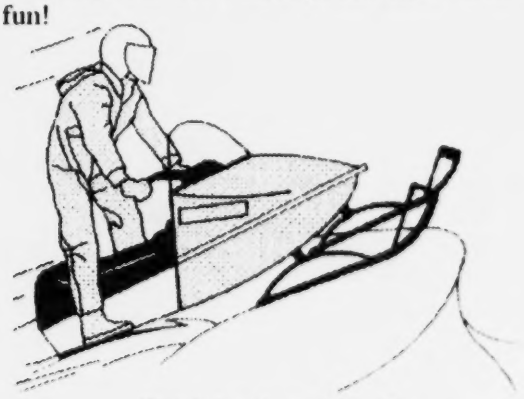
Some winter OHV riding areas are croplands that are off limits the rest of the year. Damage to these lands can cause problems for farmers and landowners. Ride on firm snow or groomed trails and be sure you have the landowner's permission.

The Utah Division of Parks and Recreation grooms hundreds of miles of snowmobile and ATV trails. Snowgrooming equipment can be very dangerous to an OHV user. The machines are slow moving and take up most of the trail. When you meet a snowgroomer on the trail, follow these guidelines:

- Keep a safe distance from the moving equipment.
- Stop your OHV off the trail and let the snowgroomer pass, then continue on your way.
- If you must pass a snowgroomer, be very careful. Make sure the operator sees you and you have plenty of room on the side of the trail. If you don't have room to pass, wait for the snowgroomer to stop or come to a bend in the trail so you can see around it. Remember, accidents happen when an OHV rider tries to pass a snowgroomer without enough space.

Snowgroomer

Another thing to be aware of is that a hard, frozen trail in the morning may be soft by afternoon. Keep alert to weather conditions and know the forecast. Pulling, pushing, and carrying your OHV through soft snow is no fun!



Watch for sharp dropoffs.

Wind can create unstable, shifting snow conditions. Avoid areas that have sharp dropoffs on one side.

Careless and irresponsible riders spoil everyone's fun. Snowmobilers don't like other OHV riders who run in the slushy snow and ruin their carefully groomed trails. Check with local law enforcement officers to see if ATVs and off-highway motorcycles are allowed on snowmobile trails in your area. Get to know your local snowmobile club members. By working with them you can protect your riding opportunities.

Traveling on thin ice is dangerous.

Check the thickness of ice before you ride across frozen lakes. Ice must be at least eight inches thick to hold you and your OHV. Know the lake you are riding on or ask about it. Some lakes have areas of thick ice, but the ice can be very thin near springs that feed them. Watch for thin ice markers.

Riding on sand dunes

Dune riding is thrilling and fun, but certain safety precautions are necessary. Make sure your OHV is equipped with a whip flag so others can see you. The whip flag should be a bright color and the antenna at least 10 feet from ground to tip. The tip should be lighted at night.

Dunes shift in size and shape. New dropoffs can be created in a few hours. *Never assume that the area you rode yesterday will be the same today.* When the wind blows, the

tracks you left 10 minutes ago can vanish. The path you traveled a few hours ago can look and handle completely differently.

Assume that wet sand is unstable and could be quicksand. Do not try to cross it unless you *know* it is a safe area.

Avoid riding on plants. They are valuable in stabilizing the dunes. Plants may also hide an obstacle or hazard.

OHV sand dune riding area.

Be aware of "slipface" dunes which have gradual slopes on one side and sharp dropoffs on the other side. Be careful of "razorbacks" which have steep angles on both sides. These same things apply to snow. Wind creates similar hazards in sand and snow.

Be extra careful when the sun is directly overhead because there are no shadows to indicate holes, dropoffs, or changes in terrain. A three-to-four-inch heat haze can appear on top of the sand on warm, sunny days. The haze creates an illusion that the surface is level, but there may really be large bumps and holes. Slow down when driving under these conditions.

A gradient (dark at top and clear at bottom) or dark lens in your goggles can help distinguish dips, drops, and holes in the sand. Wear only clear lenses at night. Night riding demands extra caution. It is best to slow down. When stopping for a rest, day or night, park at the crest of a dune. You will be more visible and have a better view.

Strong body and mind

Keep yourself in good physical shape.

Riding an OHV is very demanding. You have to be in good physical and mental shape to ride safely and be rider-active. You cannot ride well or safely if you are too tired or if you are drinking alcohol or taking drugs.

Alcohol

Alcohol sneaks up on you. Unlike other drinks and foods, alcohol doesn't have to be digested. Within minutes, it is absorbed into your bloodstream and passed to your brain. It slows down your physical and mental reactions quickly. Alcohol makes you feel like you are riding better when you are really riding poorly. Even small amounts of alcohol hurt your ability to:

- Ride and scan the trail for hazards at the same time
- See moving objects
- See clearly at night
- React quickly
- Coordinate eye, hand, and foot movements
- Maintain balance
- Make good decisions

Alcohol affects all your riding skills. The amount of alcohol in your body is described as your "blood alcohol concentration" or BAC. Most states consider people drunk at a BAC of between .08 and .10 percent. **Under Utah law, you are legally drunk at .08 percent BAC. Physical and mental reactions start to be affected at a BAC of .05 percent.**

The *American Medical Association* (AMA) cites studies showing that at .05 to .06 percent BAC, most people begin to lose skills they need to drive a vehicle. The AMA says this is the point at which the risk of having an accident goes up sharply.

The amount of alcohol it takes to affect you depends on several things:

- How many ounces of alcohol you drink
- How quickly you drink it
- Your tolerance to alcohol
- How much you weigh

A glass of wine, a mug of beer, or an ounce of hard liquor is used up by the body in about an hour. When you have more than one drink in an hour, alcohol builds up in your bloodstream. People who weigh between 140 and 180 pounds usually become legally drunk with four drinks in their systems. Those who weigh less than 120 pounds need only three drinks to become legally drunk. (See chart.)

There is nothing you can do to reduce the effects of alcohol on your body. Coffee, showers, and exercise cannot make you sober. All you can do is wait for your body to eliminate the alcohol. That takes time.

Many OHV accidents with fatal or serious injuries involve alcohol. In some states, you can get a ticket for "riding under the influence" on public lands. You can also get stiff fines and jail time.

Take control of alcohol

You can protect yourself and others from an alcohol-related accident.

Don't drink alcohol and ride an OHV. Help your friends limit their drinking. Riding while under the influence of alcohol raises the chance for accident and injury. It also causes landowners to see OHV riders as reckless and irresponsible. As a result, they may close areas to OHV riding.

The Effects of Alcohol

NUMBER OF DRINKS THAT IMPAIR MENTAL AND PHYSICAL ABILITIES

one to two drinks in system — Mental processes such as restraint, awareness, concentration and judgment affected; reaction time slowed; inability to perform complicated tasks.

three to four drinks in system — Depth perception, glare recovery, eye movement and focus affected; decreased judgment and control.

five drinks in system — Coordination deteriorates, loss of critical judgment, impaired memory and comprehension.

It's hard for some people to control their drinking when they are part of a group. That's why it's so important for friends to step in and help each other. The best policy is *"Don't drink alcohol and ride an OHV."*

Drugs

Almost any drug is risky for OHV riders. Like alcohol, drugs affect the skills you need to ride safely. Tranquilizers and barbiturates, which are depressants, act like alcohol in your bloodstream. Even cold tablets and allergy pills can make you feel weak, dizzy, and drowsy. They can affect your vision, coordination, and judgment.

Marijuana users can't react quickly or operate the OHV well. Marijuana decreases your ability to see at night and recover from headlight glare.

Amphetamines or cocaine may increase your energy for a little while but cause extreme fatigue once they wear off. They also make you feel like everything is wonderful, which leads riders to take foolish risks.

You can get too tired

Riding an OHV is tiring. When you plan a long trip, remember your body will be working hard. When you get tired, your ability to control your OHV decreases.

Here are some things you can do to keep from getting too tired:

- Protect yourself from wind, cold, rain, and heat. Dress for the conditions.

Being tired affects your ability to control an OHV.

- Limit your distance and riding time.
- Take frequent rest breaks. Stop and get off your OHV. No one should drive for more than one hour without getting off and walking around.

CHAPTER 7 QUIZ

Circle the correct answer.

1. **In what condition must the operater be to be "rider-active"?**
   A. Drunk
   B. Good physical and mental shape
   C. On drugs
   D. Dizzy
2. **What is the most common reason for OHV accidents?**
   A. Rough roads
   B. Alcohol or drug abuse
   C. Poorly maintained OHV
   D. Bad weather
3. **Trail signs help the OHV rider by supplying needed information.**
   A. True
   B. False
4. **What does SIPDE refer to?**
   A. Safe riding strategy
   B. Brand of tea
   C. Correct OHV starting procedure
   D. Prestart check
5. **What is the best riding practice to use when crossing unfamiliar terrain?**
   A. Go faster
   B. Go slower
   C. Go around the area
   D. Go back home
6. **Fatigue can affect your ability to control your OHV.**
   A. True
   B. False

CHAPTER 8

Survival and Emergencies

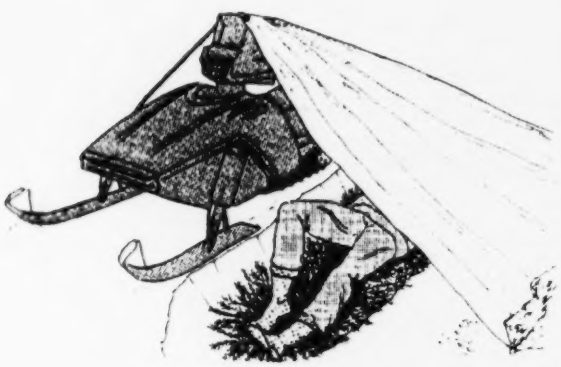
The best ways to PREVENT emergencies are:

- Plan your trips in advance.
- Follow the recommended maintenance schedule for your OHV.
- Travel with other people.
- Practice safe riding habits.

Before you leave to go OHV riding, prepare an emergency survival kit. Tell someone where you are going and when you will return.

When you are stranded

If your OHV breaks down and you cannot repair it or get help, stay calm. Panic is your worst enemy. *Do not leave your OHV.* Find shelter in a protected area near your OHV. Don't move around too much. Unnecessary movement makes you sweat and uses your energy.



A shelter made with a snowmobile and tarp.

Do not travel on foot in unfamiliar areas after dark. Conserve your energy to help keep you warm.

Use your OHV as a wind block or as part of a lean-to. An overhanging rock shelf, or a clearing at the bottom of a tree make good shelters. In forested areas, make a lean-to by placing one branch horizontally between two trees or crotches of upright branches. Lean smaller branches against the horizontal bar. Weave branches together to make sides for your shelter.

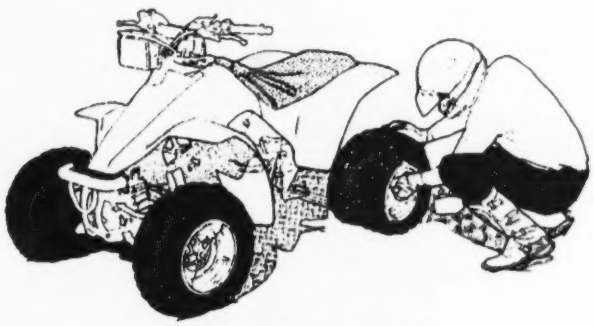
Snowbanks and deep drifts also offer protection. Dig a snow cave facing away from the wind, just larger than your body. Line it with any extra material you may have, such as the seat from your OHV. Carve a six-inch-diameter hole in the top of the cave for ventilation.

If you need a fire, find a protected area away from your OHV and any overhanging branches containing dry leaves or snow. Start the fire using small dry sticks and branches. Gradually add larger pieces of wood. If you have to spend the night, collect enough wood before it gets dark. Before leaving your emergency shelter, make sure all ashes are smothered. One hot ash could destroy your entire riding area.

If you are both stranded and injured, attend to injuries first, then sit down and think. Good judgment and common sense will help you find solutions to your emergency problems.

Handling mechanical problems

Mechanical problems can happen with any motorized vehicle. You can run out of gas. Your headlight might burn out at night. These situations are not just inconvenient. They can be dangerous as well. Help may be miles away. OHV riders must be prepared to repair equipment on the trail. Fortunately, most OHV problems can be fixed on the trail if you carry a few tools and spare parts.



A rider fixes a flat tire.

Each OHV comes with a basic set of tools. Along with tools you should carry an extra spark plug or two. A major cause of engine stalls or poor performance is a bad spark plug. Tools and equipment you should carry include:

ATV AND OFF-HIGHWAY MOTORCYCLE

- Pliers
- Wrenches (size to fit most parts, plus spark plug wrench)
- Screwdriver
- Extra spark plug
- Wire
- Electrical tape
- Tire repair kit
- Tow rope

SNOWMOBILE

- Pliers
- Wrenches (size to fit most parts, plus spark plug wrench)
- Screwdriver
- Extra spark plug
- Wire
- Electrical tape
- Tow rope
- Extra drive belt
- Pull-start rope

Your survival kit

A survival kit is *always* a necessity for a long ride. Adapt your kit to your specific needs. It should fit easily into a can or other small waterproof container. Just like the emergency tool kit, the survival kit is basic to all terrain, from woods to desert.

Whenever you plan a long ride or when you are going to ride farther than you can walk back in a short period of time, you should carry the following items in your backpack:

- Extra key (One can easily get lost.)
- High-energy food (one-day supply)
- First aid kit
- Flashlight (extra batteries)
- Good knife and maybe a hand ax
- Flares (high-arch signal flares)
- 50 feet of 1/4-inch nylon rope
- Space blanket
- Area map and good compass
- Small signal mirror
- Emergency shelter material (tarp, tube tent)
- Container of water or juice
- Pencil and paper
- Large roll of duct tape
- Matches in waterproof container

Fanny pack used for a survival kit.

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First aid

OHV accidents can include body injury as well as equipment damage. The most dangerous situation is when a person is injured and alone, miles from help. You may have to treat yourself or someone else when you least expect it. In any emergency, be calm and firm. Reassure the injured person.

Your first aid kit should contain the following items:

- Six band-aids
- Four 2-inch compresses
- Four 4-inch compresses
- Four triangular bandages
- Two rolls of 2-inch gauze
- One roll of 1-inch adhesive tape

Select a small waterproof container for your first aid kit.

Whenever you come upon an OHV accident, always suspect neck and back injuries. Go for help if it is close by. If it isn't, use first aid. This chapter gives you a basic overview of first aid. Your local Red Cross can give you information about first aid and CPR classes in your area.

The following medical problems are very serious and can mean death for the victim if left untreated. They are breathing failure, hypothermia, shock, and severe bleeding. Learn as much as you can about these problems and what to do if they occur.

CAUTION: Never remove a helmet from an injured rider unless he or she is not breathing . Severe damage could result if it is done improperly.

Hypothermia

The greatest danger for OHV winter riders is hypothermia from the cold. Hypothermia happens when the body loses heat faster than it produces heat. Energy drains from the body.

Hypothermia can only be stopped by getting out of the cold. It can be *prevented* by dressing properly. People may even become victims of hypothermia at temperatures above freezing if they are improperly dressed.

When your body temperature goes down, you begin to lose your coordination. You also lose judgment. Next, you lose consciousness, and then you die. Four factors contribute to hypothermia:

- Cold (not necessarily severe)
- Water (rain, snow, water, or condensed perspiration)
- Wind (windchill factor, refer to chart at the end of chapter 5)
- Exhaustion

Symptoms of hypothermia:

- Uncontrolled shivering
- Vague or slurred speech
- Fumbling hands or stumbling gait
- Memory lapses
- Drowsiness
- Apparent exhaustion

Treatment of hypothermia:

- Get the victim out of wind, rain, snow, cold.
- Set up a shelter or move to a timbered area.

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- Take off wet clothing.
- Place victim in dry clothing or sleeping bag.
- Get in the sleeping bag with the victim to add warmth.
- Give the person warm drinks if possible. *No alcohol!*
- If the victim is conscious, give quick energy foods (sugar).
- Keep the victim warm and dry.
- Obtain medical help as soon as possible.

The length of time a person can be exposed to cold without injury depends on the outside temperature and the windchill factor. A person who is healthy and rested, has eaten recently, and wears proper clothing reduces the chance of hypothermia.

Frostbite

Frostbite happens when bare skin is exposed to freezing temperatures. Parts of the body actually freeze because of reduced blood flow.

Symptoms of frostbite:

- Loss of feeling
- Dead white appearance in the affected area

Treatment of frostbite:

- Apply heat to affected parts of the body as soon as possible. Heat from a campfire or hot water bottle will help, or soak affected areas in a warm water bath (less than 110°F).
- Cover affected areas.
- *Do not* rub, vibrate, or apply pressure.
- *Do not* apply snow or attempt to thaw the affected area in cold water.

Avoiding avalanches

OHVs are very popular in the mountains. Since one footstep is enough to start an avalanche or snowslide, an OHV is certainly capable of starting one. Most accidents occur in slab avalanches, where a large area of snow breaks away and slides down the mountain.

The best way to avoid an avalanche is to stay out of areas where avalanche hazards exist. The safest routes are across ridgetops, slightly on the windward side and away from cornices. If you cannot travel on ridges, the next safest route is through an open valley far away from the bottom of slopes. Avoid disturbing cornices from below or above. Drive to the top of ridges by detouring around cornice areas.

Do not cross the lower part of slopes on your OHV. Do not drive your OHV across long, open slopes or along known avalanche paths. Many potential avalanche hazard areas are posted and closed to travel. Don't risk your life in an area you know is dangerous.

Trail an avalanche cord behind your OHV in cornice areas. If you are buried, this bright colored, lightweight rope will float to the snow's surface so rescuers can find you.

If you are involved in an avalanche and are not buried, mark the place where you last saw someone who is buried. Search downslope from that point. Poke the snow with a probe or stick. You are the victim's best hope for survival.

After 30 minutes, the buried victim has only a 50 percent chance of survival. Don't leave the victim to go for help, unless someone else continues to look or the help is close by. If one person does go for help, mark the route for return.

For updated snow conditions and weather information in Utah, call:

Salt Lake - 364-1581 Provo - 374-9770

Ogden - 621-2362 Logan - 752-4146

CHAPTER 8 QUIZ

Circle the correct answer.

1. **What should you carry with you on the trail?**
   A. A tool kit
   B. A first aid kit
   C. A survivl kit
   D. All of the above
   E. None of the above
2. **Whenever you come upon an OHV accident, always suspect neck and back injuries. Never remove a helmet from an injured rider.**
   A. True
   B. False
3. **The best way to avoid avalanches is to stay out of areas where avalanche hazards exist.**
   A. True
   B. False
4. **Which medical problem can cause death to an injured OHV rider if left untreated?**
   A. Breathing failure
   B. Hypothermia
   C. Shock
   D. Severe bleeding
   E. All of the above
5. **What is the greatest danger for OHV winter riders?**
   A. Snow
   B. Cold weather
   C. Hypothermia
   D. Cross-country skiers
   E. None of the above

ATV SKILLS MODULE

ATV

SKILLS MODULE

To be a good, safe ATV rider, you must learn basic skills. You must also know how your ATV works.

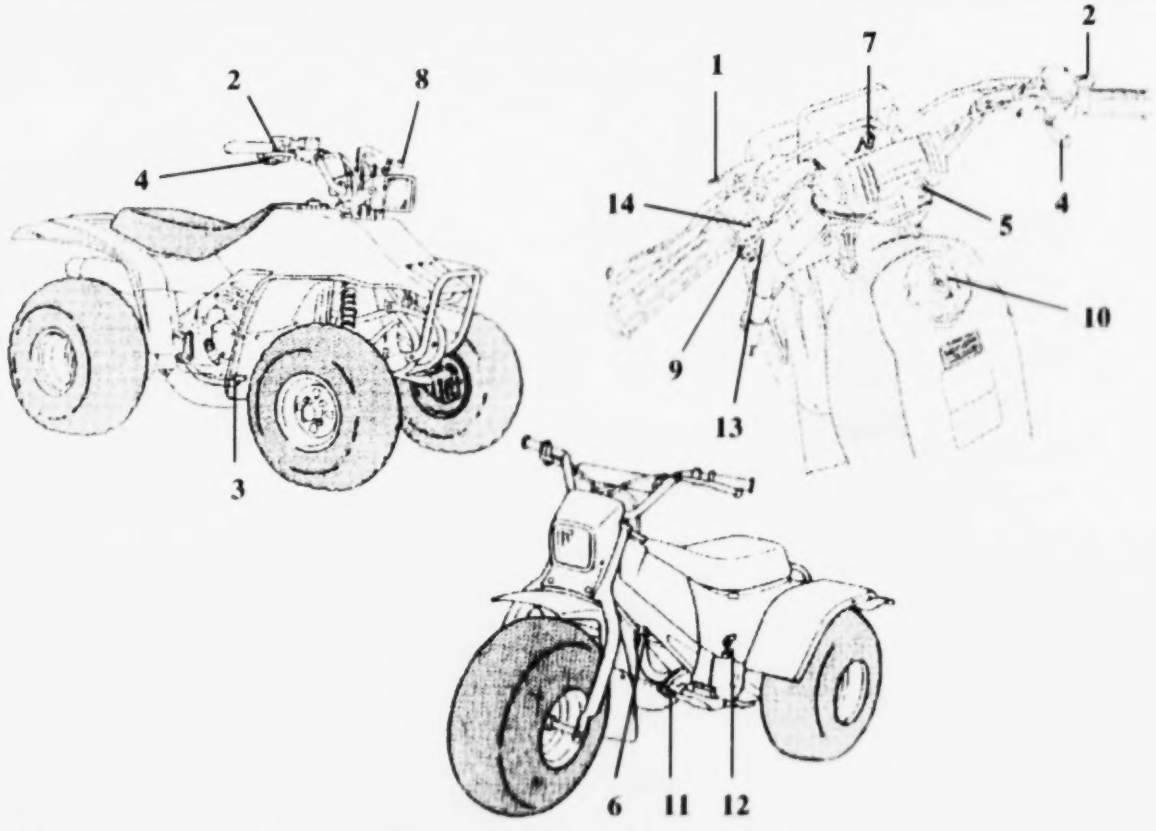
Your ATV has an owner's manual. Read it carefully. It is important that you be familiar with the ATV you plan to ride. Go through your owner's manual with your parents. If your machine is new, you may want to go through the manual with your dealer.

An ATV is a rider-active machine. This workbook teaches basic skills to start, stop, turn, and ride on hills. It will prepare you for training on the ATV itself.

Before you ride your ATV, read the owner's manual carefully. Memorize where the controls are located.

Identify the following controls (if your ATV is equipped with them):

1. Parking brake
2. Hand brake lever(s)
3. Foot brake lever or pedal
4. Gas control (throttle)
5. Ignition switch
6. Fuel supply valve
7. Choke (primer)
8. Clutch
9. Engine stop/kill switch
10. Gas cap and tank vent
11. Shift lever
12. Starter (pull, kick, electric)
13. Light on/off switch
14. Light hi/low switch



Identify the controls by matching the numbers.

Getting ready to ride

A preride inspection helps reduce the possibility of accident or breakdown. It also helps you keep your ATV in working order for a long time. Your owner's manual will show you what to check on your machine.

When planning your ride, remember that you can ride farther in an hour than you can walk in a day. You want to be sure you and your ATV are in good shape.

The **T-CLOC** process will help you remember what to check before you ride.

T-CLOC
Preride Inspection Checklist

	COMMENTS
TIRES AND WHEELS	**Air pressure** — Be sure tire pressure is according to manufacturer's recommendations and that both left and right tires have equal pressure. Unequal pressure affects ATV handling. Differences in temperature and ambient air pressure can either increase or decrease tire pressure, so for best traction and handling, the pressure should be checked each day. **Tire condition** — Check for cuts or gouges that could cause air leakage. **Wheels** — Make sure axle nuts are tightened and secured by cotter pins. Check these before every run. Rim bolts can come loose from rough terrain and vibration. Check these too. To detect worn wheel bearings, grasp the tire at front and rear and flex; there should be no free play or slip as you rock the wheel.
CONTROLS AND CABLES	**Controls** — Check the location of all the controls when sitting on the ATV. They may have been moved when you rode last. Make sure they work properly. **Throttle** — Check throttle free-play as you move the handlebars to lock. Make sure it snaps closed. **Brakes** — Are they positioned for easy reach? Is the parking brake adjusted properly? Check the brake wear indicators. **Recoil Start** — Is the pull-start rope free from frays and cuts? **Shifter** - Is it firmly attached and positioned for safe operation?
LIGHTS AND ELECTRICS	**Ignition switch** — Check that it works properly. **Engine stop/kill switch** — Does it work properly? **Lights** — Check that they are working.
OIL AND FUEL	**Oil** — Check while engine is off. Look in owner's manual for proper procedure. Make sure there aren't any leaks. **Fuel** — Make sure you have enough fuel before you start out. Know your ATV's cruising range (especially important in winter riding). **Air filter** — Take off the filter cover and check the condition of the element. Be sure it's clean and not torn or blocked.
CHAIN AND CHASSIS	**Chain** — Check chain slack or free-play so that it is within specifications as described in your owner's manual. Be sure chain is lubricated. Off-road riding is tough on a chain. **Drive shaft** — Check for oil leaks. Maintain the proper oil levels as described in your owner's manual. **Nuts 'n Bolts** — Rough terrain may loosen parts. Shake handlebars, footrests, etc. to be sure nothing is loose. Check major fasteners for tightness.

As with other OHVs, you should carry repair tools and parts on your ATV. These include,

- Pliers
- Wrenches (size to fit most parts, plus spark plug wrench)
- Screwdriver
- Extra spark plug
- Wire
- Electrical tape
- Tire repair kit
- Tow rope

Here is a chart on troubleshooting. Also check your owner's manual for troubleshooting.

TROUBLESHOOTING

Trouble	Probable Cause	Remedy
1. Engine hard to start or does not start at all	Engine stop switch off	Turn on.
	Ignition switch off	Turn on.
	Spark plug fouled	Clean or replace.
	Empty fuel tank	Fill.
	Plugged fuel line/filter	Check condition of fuel lines, filter, and tank. Clean or change filter. Clean fuel tank if necessary. Check to see if fuel supply valve is clogged or off and that fuel cap vent is "on."
	Improper or no ignition	Check spark plug leads. Check for correct spark plug gap and condition. Check to see that wire is on spark plug.
	Engine floods	Disengage choke, wait 60 seconds or more. Then depress throttle fully and crank engine. Release throttle immediately after engine starts.
2. Engine stalls	Fuel tank empty	Fill.
	Fuel supply valve off	Turn on.
	Air filter or fuel tank vent clogged	Clean according to directions in owner's manual.
	Spark plug fouled	Clean or replace.
	Engine overheated	Too much idling/low speed running; turn engine off to cool down. Cooling fins may be packed with mud or dirt; clean. Engine oil or coolant low, add sufficient amount. Wrong spark plug; correct.
3. Engine does not develop enough power	Compression leakage	Tighten cylinder head. You may have to replace head or base gasket.
	Clutch slipping	Re-adjust clutch cable.
	Clogged muffler	Consult your dealer.
	Air filter or spark plug dirty	Clean or replace.
	Choke on when engine warm	Turn off.
4. Poor handling and hard	Front, rear tires not	Check air pressure and properly inflate steering properly inflated tires.
	Rear tires have unequal pressure	Equalize air pressure of both rear tires.

Your ATV is rider-active. That means you use your body to control it. Warm up and stretch your muscles like you would before a baseball game to help prevent strain and injury.

Be sure to let your riding friends know about any health problems you have. Always carry identification that gives your name, address, and phone number. In an emergency, people will know who to call.

You are responsible for controlling your ATV. Read the owner's manual to learn how to start your ATV. Also use the **BONE-C**:

B - BRAKE	Set the parking brake.
O - ON	Turn fuel cap vent to On position. Also turn the fuel valve to On or Reserve position, depending on how much fuel is in the machine. Turn ignition key on, if equipped.
N - NEUTRAL	Check that the transmission is in Neutral. To make sure it is in Neutral check the Neutral indicator, if equipped. If necessary, rock the machine back and forth.
E - ENGINE	Check that the engine stop switch is in the Run or Start position. The engine stop switch is usually found by either the left or right hand grip.
C - CHOKE	If the engine is cold, put the choke in the On position. Check your owner's manual for choke location.
	Start the engine according to the directions in your owner's manual.
	Once the machine is warmed up, return the choke to its normal position. This is very important because if you don't, the machine will not run properly, using too much gas.

The following pages explain what you will be doing in the ATV skills module. The first drills are for parking, braking, and riding in a straight line. You must learn these basic skills.

Getting on your ATV

The first rule is to wear protective gear. A helmet, proper clothing, boots, and gloves will give you an edge on safety and control.

To get on your ATV:

1. Set the parking brake.
2. Grasp the left handlebar with your left hand. Place your left foot on the left footrest. Lean across your ATV to grasp the right handlebar with your right hand. Swing your right leg over the seat and place your foot on the right footrest. Seat yourself in a comfortable position.
3. Whether the engine is running or not, *keep your feet on the footrests at all times!*
4. Be careful not to step on the gear shift lever.

Keep your feet on the footrests.

Riding your ATV

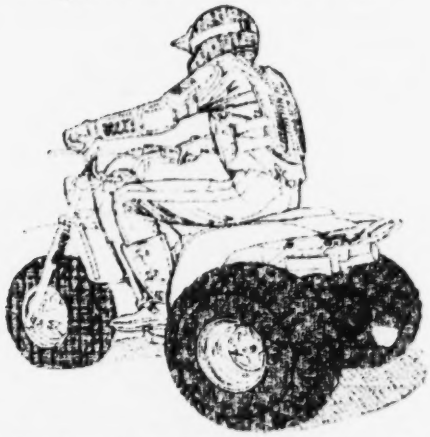
See your owner's manual for instructions on shifting your model ATV. Different models have different transmissions. Be sure you know how to shift the ATV you are riding.

Always let go of the gas when shifting to keep the front wheel(s) from lifting off the ground. Listen to your engine. With a little

practice, you will be able to hear when to shift. If your ATV has a manual clutch, practice shifting to prevent stalls and jerky rides.

When the engine is warm, you should try doing this:

1. Set the parking brake.
2. Get on your ATV.
3. Hold the rear brake and shift into first gear.
4. Release the parking brake.
5. Release the rear brake and slowly apply the gas.
6. If your ATV has a manual clutch, release the clutch slowly while you gradually increase the gas. Sudden clutch movement can make your ATV jump. You can lose control.
7. Keep your feet on the footrests.



Practice simple skills to be a better rider.

To slow down or stop:

1. Apply your brakes and release the gas.
2. Shift to a lower gear to slow down.
3. Apply both brakes equally (if equipped).
4. Avoid too much braking while cornering. Do most of your braking before you turn.
5. Apply brakes lightly on slippery surfaces.
6. Keep your head and eyes up.

To park your ATV:

1. Try to find a flat place to park your ATV.
2. Shift into neutral, and use the engine stop/kill switch.
3. Turn off the ignition key or switch if equipped. This will prevent your battery from wearing down. By using the emergency stop/kill switch, you will develop good habits in case you need to make an emergency stop.
4. Set the parking brake, or shift into a low gear if you don't have a parking brake. This will keep your ATV from rolling.
5. Turn the fuel off.

It is very important that you learn how to start, slow down, and stop your ATV safely and smoothly. Remember to keep your feet on the footrests at all times. Keep your head and eyes up. Look straight ahead when stopping in a straight line. Shift to a lower gear as you slow down.

Correcting problems

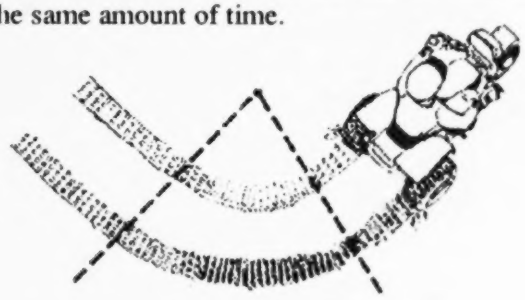
In the skills module, you will be able to practice starting and stopping. If you go past the final stopping marker, start to slow down sooner. If your ATV turns to one side when you try to stop in a straight line, you are probably shifting your weight too much.

If the rear end of your ATV slides or skids, start slowing down sooner. Apply brake pressure more gradually.

If you cannot shift smoothly, move your foot away from the shift pedal after each shift. Release the gas before each shift.

Turning your ATV

Most ATVs have a solid, "live" rear axle. That means both back wheels turn at the same speed all the time. When you turn, the outside wheel must go farther than the inside wheel in the same amount of time.



The outside wheel travels farther in a turn.

In some model ATVs, the wheels do spin at different speeds. The outside wheel turns faster in a turn. This type of ATV works more like a car and requires its own special turning skills. Only solid rear axle turns are discussed here. All ATVs should be locked into the solid axle drive position to perform these exercises. Check your owner's manual to determine your vehicle type.

You must use your body weight to turn your ATV. This is called "body english." Your body tells your ATV what to do. For normal turns, put your weight on the outside footrest, and lean in with your upper body.

Lean your upper body into the turn.

Follow these steps:

1. Turn the handlebars the way you want to turn.
2. Maintain gas through the turn.
3. Stand up slightly on the footrests.
4. Shift your body weight forward and to the inside of the turn.
5. Press your foot down on the outer footrest and lean your upper body in slightly.
6. Slow down before the turn and gently increase the gas as you exit the turn.

The idea is to shift your weight away from the inside rear wheel to the outside footrest while you lean to the inside of the turn. If you do not do this, your ATV may plow straight ahead.

Keep your weight on the outside footrest when turning.

Turning at high speeds is much like turning at low speeds, but you must exaggerate your body english. Lean your upper body further toward the inside of the turn, and keep your weight on the outer footrest.

If your ATV starts to tip while turning, lean your upper body further into the turn and gradually reduce the gas. Make the turn wider. If your ATV turns too wide, slow down. Look around the turn.

Driving the cones

You must be able to coordinate speed, body position, and balance while weaving between cones. This drill will help you learn to avoid obstacles in open areas. It will also help you on winding trails and in wooded areas. Remember to keep your feet on the footrests, look ahead, and concentrate on the path.

Your body position is important for quick turns.

Shift your weight quickly to start a turn. To turn left, apply a slight left turn to the front wheel(s). Quickly lean left, putting pressure on the right footrest, and apply a short burst of gas. To go right, do the opposite. Do not look at the cone you are approaching. Look two cones ahead.

If you run over the cones, make wider turns, and shift your weight more. Use a short burst of gas, but don't reduce weight on the front end.

Riding up and down hills

You will find hills just about anywhere you ride. You must be prepared to ride safely on hills.

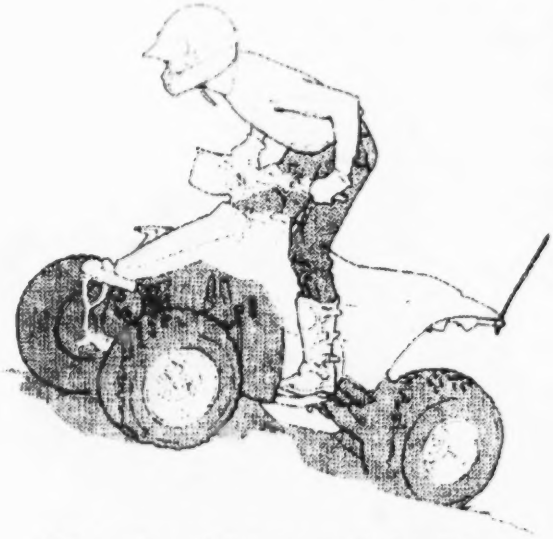
Some hills are too steep for your ability. Use your common sense. If the hill looks too steep, it probably is. Some hills are just too much for your ATV regardless of your abilities.

Never ride past what you can see. If you can't see what's on the crest of a hill, slow down until you have a clear view.

To climb a hill:

1. Shift your ATV into a lower gear and speed up *before* you begin to climb the hill.
2. Stand on the footrests and lean your upper body weight forward over the front wheel(s).
3. *The key to being a good hill rider is to keep your weight uphill at all times.*

If the hill gets too steep, you may need to shift to a lower gear to prevent stalling. To shift into a lower gear on a steep hill, remember to stand on the footrests and lean your upper body over the handlebar. Shift quickly, and briefly release the gas. This will help keep the front wheel(s) from lifting.



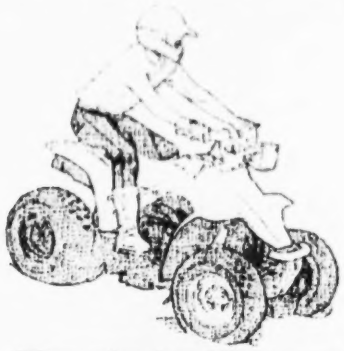
When going uphill, lean over the handlebar.

If you don't have enough power to reach the top of the hill, but still have enough forward momentum to turn around, keep your weight uphill and make a U-turn before you lose speed.

Lean your weight to the uphill side.

When going down a hill, steer your ATV directly downhill. Shift your weight to the back of the ATV, use a low gear, and let off on the gas. Pump the brakes to slow down. If your ATV still goes too fast, maintain smooth braking pressure. Be sure you are in gear and the transmission is engaged, but do not apply the gas.

If your wheels lock, creating a slide, release the brakes and then gradually brake again.



When going downhill, keep your weight to the back.

If you are riding up a hill and lose all forward momentum:

1. Apply the brake and stay standing.
2. Keep your upper body weight forward. Never let the ATV roll backwards.*
3. Set the parking brake, and get off on the left side.
4. Drag the rear end of the ATV uphill, if you can. Keep your body on the uphill side of your ATV. *Never stand downhill of your ATV.* Keep dragging the ATV around until the front is pointing slightly downhill.
5. Get back on your ATV while you keep your weight uphill. Slowly release the parking brake and ride the ATV downhill.

If you cannot drag the rear end of the ATV uphill (step 4), complete steps 1 through 3 and then:

4. Turn the handlebar full left.**
5. *Stand on the uphill side* of your ATV, release the parking brake, pump the handbrake, and let the ATV roll backwards until it is pointed slightly downhill.
6. Reset the parking brake.
7. Get on your ATV from the uphill side, keeping your weight uphill as much as possible. Release the parking brake and slowly ride the ATV downhill.

---

*Do not let your ATV roll backwards on a hill. If it starts rolling downhill and has a front brake(s), try to stop it using the *front brake only*. Remember, stay standing on the footrests with your body weight uphill. Move your weight forward and apply the front brake to slow and stop the ATV. Using the rear brake could cause the ATV to roll over backwards. Do not attempt to back down a hill using the rear brake. If the ATV continues to roll backwards, get off to the side immediately.

**On some ATVs, the parking brake lever is located near the footbrake. Turn the handlebar to the right on these models.

Making turns on your ATV

You must be able to ride up a hill, turn your ATV around, and ride down. These drills will help you practice normal hill climbing techniques. They will also teach you what to do if you lose momentum on an uphill climb. Remember, the steeper the hill, the more weight you'll need on the uphill side!

U-Turn

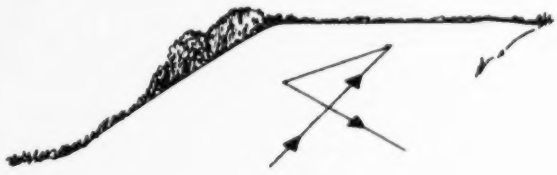
Practice the U-turn method:

1. Turn your ATV to the left in an arc before you reach the top of the hill. Keep your weight uphill.
2. Keep turning, using your momentum to turn downhill. Your weight should now be over the rear of the ATV (uphill).
3. Go down the hill in low gear. Slowly apply the brake(s).
4. Practice climbing and turning to the right, stopping at the base of the hill.

Do not try to turn your ATV if you do not have enough forward speed to make a U-turn. Apply the brake(s) before you stop. Don't let the ATV roll backwards.

Do not let your ATV roll backwards on a hill. If your ATV has a front brake, try to stop the ATV using the front brake ONLY. Move your body weight forward and use the front brake to slow the ATV to a stop. If the front brake does not slow the ATV, get off on the side immediately. Do not try to back down a hill using the rear brake. Using the rear brake could cause you to roll over backwards.

If your ATV does not have a parking brake but has a manual clutch, shut the engine off, leave the ATV in gear, and dismount to the left. Pump the clutch to let the ATV roll slowly backwards and sideways to the hill.



K-Turn

Practice the K-Turn method:

1. Ride straight up the hill and stop by gently applying the brakes.
2. Set the parking brake and get off to the left. Be sure your parking brake is working. When you are on the left side, you can control the parking brake (or clutch) better during the turnaround.
3. Turn the handlebars fully to the left.
4. Release the parking brake. Pump the handbrake, and let the ATV roll slowly backwards. This will turn the ATV sideways to the hill.
5. Reset the parking brake.
6. Turn the handlebars to the right.
7. Mount the ATV while keeping your weight uphill.
8. Go down the hill in low gear. Slowly apply the brake(s).

Traversing the hill

You must be able to ride across a hill without stalling or tipping your ATV. Practice will teach you to ride over hilly terrain.

When you drive across a slope rather than directly up or down, you are traversing. Sometimes it is better to climb up or go down a steep hill by traversing. But traversing can be tricky and should be avoided on slippery or very bumpy hills.

Lean your upper body uphill when traversing a slope.

When traversing hills, lean your upper body uphill. When riding on soft terrain, gently turn your front wheel(s) uphill to keep your ATV on a straight line across the hill. If your ATV begins to tip, turn the front wheel(s) downhill, if you can. If the terrain will not let you turn downhill, get off your ATV on the uphill side immediately.

You may need to turn the front wheel uphill slightly.

Use the same steps for climbing and going down hill as you did in the turning exercise:

1. Exaggerate your weight shifts.
2. Keep your upper body weight into the hill. If the ATV starts to turn downhill, turn the front wheel(s) slightly uphill.
3. If your ATV loses uphill momentum, approach hills at a slightly higher speed.
4. If your front wheel(s) lift as you climb the hill, lean forward more. Move way up on the seat or stand and position your body over the front wheel. Don't speed up as quickly going up the slope.
5. If your ATV tips as you traverse the hill or turn, lean into the hill more. Move off the seat towards the uphill side. Put weight on the uphill footrest.
6. If the rear end of your ATV slides downhill, put weight on the downhill footrest but lean your body uphill.
7. If there is a lot of jarring as the front wheel(s) hit bumps going down the hill, shift more weight to the back. Slow down.

Stopping your ATV

You must be able to stop your ATV quickly. Because nature is constantly changing, you must be prepared to stop quickly or slow down to avoid fallen trees or washouts on the trail. An animal may dart out in front of you, or you may meet another rider as you round a bend.

A quick stop can be necessary at any time, so remember to ride within your ability, use both brakes when stopping, and slow your ATV when cresting a hill or going through a turn. Never ride past your limit of sight. If you accidentally lock the wheel(s), release the brakes briefly and reapply the brakes more gradually.

Practice quick stops to prevent accidents.

If your ATV swerves to one side when you brake, center your body on the ATV. Look where you want to go. If the rear end slides or skids, apply less rear brake pressure. Shift to a lower gear more smoothly. If the front end slides or skids, apply less front brake pressure.

Going over obstacles

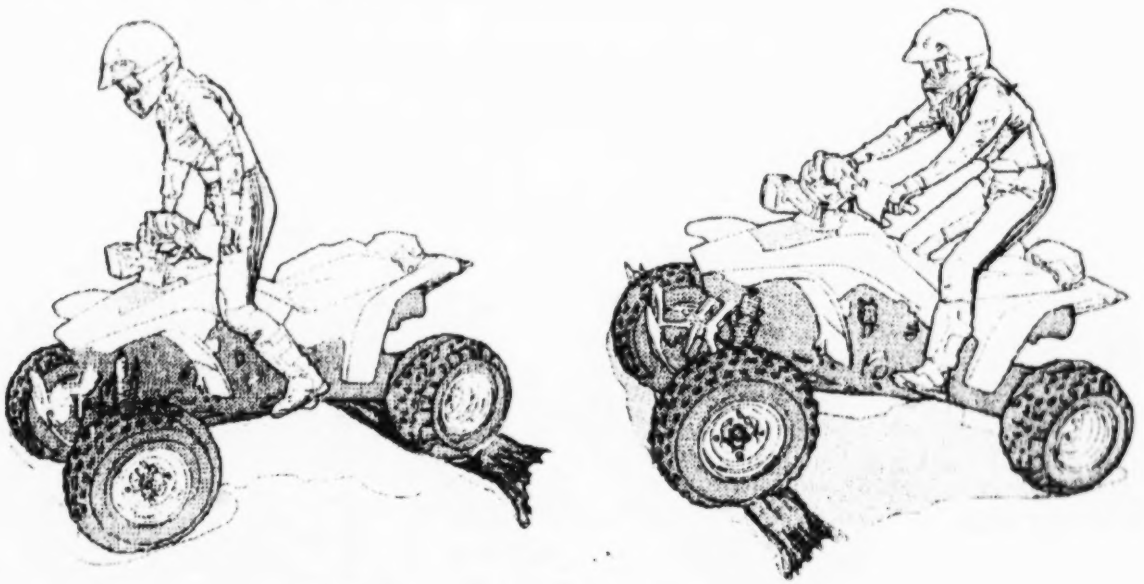
To cross an obstacle, choose the best path, and then stand on your footrests to absorb the impact. Practice will help you maneuver your ATV over things you cannot avoid, such as logs. Keep your knees and elbows flexible, and use your legs and arms as shock absorbers. If you are being jarred too much, bend your knees and arms more.

Mounds and ruts are obstacles. Be sure to stand on the footrests to cross them. If only one front or rear wheel goes over the obstacle, be ready to shift your weight to balance the ATV and keep from tipping.

Your ATV may not go straight over obstacles. It may turn to one side. To stop this, grip the handlebar firmly, and keep the ATV pointed straight ahead.

If your front wheel(s) pushes the obstacle instead of going over it, pull up on the handlebars, and increase the gas slightly as the front wheel(s) meets the obstacle. Let off on the gas as soon as the front wheel has gone over the obstacle.

If the rear wheels hit the obstacle too hard, lean forward a little after the front wheel(s) has gone over. This takes weight off the rear wheels. Release the throttle before the rear wheels hit the obstacle.



Standing absorbs the impact when crossing obstacles.

ATV SKILLS MODULE
HOME STUDY QUIZ

Circle the correct answer.
(Answer key in back)

1. **Following the owner's manual maintenance schedule will help prevent most breakdowns.**
   A. True
   B. False
2. **Turning at slow speeds requires less weight shifting than turning at higher speeds.**
   A. True
   B. False
3. **Look through a curve when turning.**
   A. True
   B. False
4. **Always keep your feet on the footrests.**
   A. True
   B. False
5. **Never ride an ATV on paved streets.**
   A. True
   B. False
6. **The first control to check on your ATV before climbing hills is your parking brake.**
   A. True
   B. False
7. **Lean your upper body uphill when climbing hills.**
   A. True
   B. False
8. **When going down a hill, sit with your weight on the back of the ATV.**
   A. True
   B. False
9. **Approach an obstacle at walking speed and as straight as possible.**
   A. True
   B. False
10. **Lock your knees and elbows while going over an obstacle.**
    A. True
    B. False
11. **BONE-C is the process used as a starting procedure.**
    A. True
    B. False
12. **You need the owner's permission to ride on private land before you enter the property.**
    A. True
    B. False
13. **What is the most important piece of riding gear?**
    A. Helmet
    B. Boots
    C. Gloves
    D. Goggles

SNOWMOBILE SKILLS MODULE

SNOWMOBILE

SKILLS MODULE

To be a good, safe snowmobile operator, you must learn basic skills. You must also know a little bit about how a snowmobile works.

Your snowmobile has an owner's manual. Read it carefully. It is important that you be familiar with the snowmobile you plan to ride. Go through your owner's manual with your parents. If your machine is new, you may want to go through the manual with your dealer.

A snowmobile is a rider-active machine. This workbook teaches basic skills to start, stop, turn, and ride on hills. It will prepare you for training on the snowmobile itself.

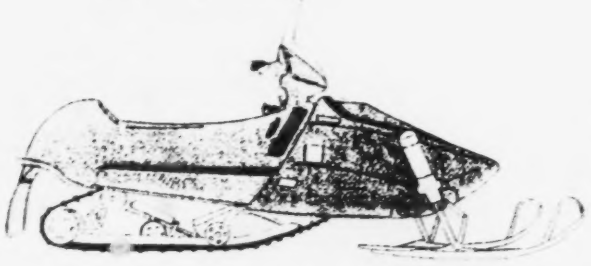
Safety Is ALWAYS first

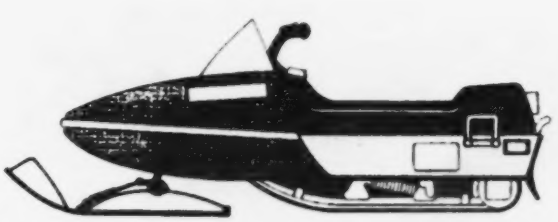
Riding Utah's snowmobile trails is great fun and very exciting. But getting hurt is never fun. *Always put safety first!*

- *Never* ride alone. Always tell someone where your group is going.
- Always wear *safety gear*.
- Travel on the *right side* of the trail.
- Ride at a *safe speed*.
- Ride *terrain* you can handle.
- *Never* light a match to check the level in your gas tank.

Other safety tips:

- Use your lights at night. If they aren't working, don't take the machine out. During the day, lights help other riders see you.
- Be sure your throttle (gas control) is not sticking.
- When towing another snowmobile or a sled, use a tow bar or a stiff hitch.
- Use a snowbank to help load or unload your snowmobile. Always have another person help.
- Be sure your snowmobile is in good working condition. Do your **T-CLOC** preride inspection.
- Check the stability of ice before riding on frozen lakes or rivers.
- Always travel on marked or groomed trails. Don't follow that mystery trail.
- Don't tailgate the machine ahead of you.
- Use **SIPDE** (**S**can, **I**dentify, **P**redict, **D**ecide, and **E**xecute) to avoid hazards on the trail ahead of you. Be aware of hidden rocks, trees, other snowmobiles, cars, trains, and wildlife.





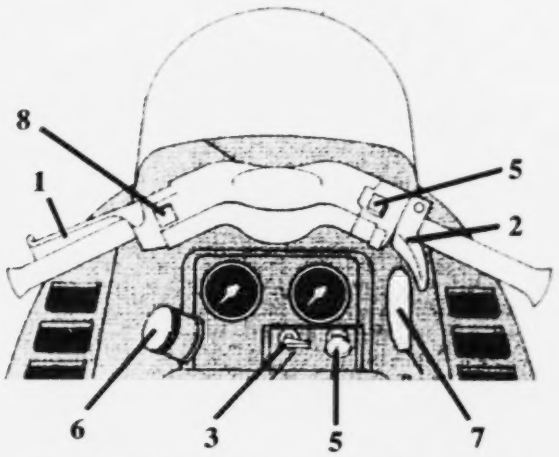
It is important to be familiar with the snowmobile you plan to ride.

Basic parts

The throttle is a lever located on the right handgrip on most machines. It is connected to the carburetor on the snowmobile and controls the gas. By pressing the throttle with the thumb, the operator moves the snowmobile forward.

Snowmobile brakes are on the left side of the handgrip.

Steer your snowmobile by turning the handlebar which turns the skis.



Identify the controls by matching the numbers.

Identify these controls (if equipped):

1. Hand brake lever
2. Throttle
3. Ignition switch
4. Choke (primer)
5. Engine stop/kill switch
6. Gas cap/tank vent
7. Starter (pull, kick, electric)
8. Light hi/lo switch

The track on your snowmobile turns on the snow and propels the snowmobile forward. Ice, rocks, mud, and other debris sometimes get stuck inside the track. When the track appears to be clogged, check for any tears on the belt fabric or any loose bolts or nuts. Get someone to help you clear the track. Lift up on the machine, and open the throttle for 20 to 25 seconds. Be sure that no one is standing behind the machine while you are clearing the track.

The lights on most snowmobiles come on automatically while the machine is running. They are usually controlled by a switch: on/off, bright, or dim. Before going out on the trail, be sure your lights are working.

Always do a complete **T - CLOC** inspection on your snowmobile before you ride.

T - CLOC

T - Tracks and wheels

C - Controls and cables

L - Lights and electrical systems

O - Oil and fuel (oil injection)

C - Chassis and belt

Fueling your snowmobile

Most snowmobiles use either an oil and gas mix or oil injection system. The gas level can be checked by removing the cap and looking in the gas tank. Always turn your engine off before fueling. Avoid filling the gas tank too full. If you spill gas, wipe it up with a rag. Gas along the running boards or seat is a fire hazard. Never smoke or use matches near the gas tank.

Check owner's manual for oil and gas mixture ratio.

Be sure you have enough gas before starting on the trail. Some snowmobiles have gas level indicators. Check your owner's manual to see where the gas level indicator is located.

Starting and stopping the engine

All newer models have an emergency stop/kill switch. This is usually located on the handlebar near the throttle. It must be in the run position in order for the snowmobile to start. On most snowmobiles this switch will move in either direction.

When starting your snowmobile, use the **FINE-C** process:

F - Fuel	Be sure fuel is on.
I - Ignition	Be sure ignition is on.
N - Neutral	Be sure your snowmobile is in neutral if equipped.
E - Electrics	To start your snowmobile, the key must be in the start or on position. In addition, the stop/kill switch must be in the run position.
C - Choke	When the engine is cold, use the choke until it runs smoothly. Then push the choke to the run position.

Be ready to take control of your machine immediately. Most machines use a pull start; some have an electric start that uses a key.

Newer snowmobiles have chokes with two position settings. On cold mornings, the choke may have to be set at the high position until the engine warms up. After 30 to 45 seconds or after the engine is warm, close the choke or the engine will die.

If the engine does not start after several tries, check your owner's manual for possible reasons. Always depress the throttle once on the first try to be sure it is not frozen.

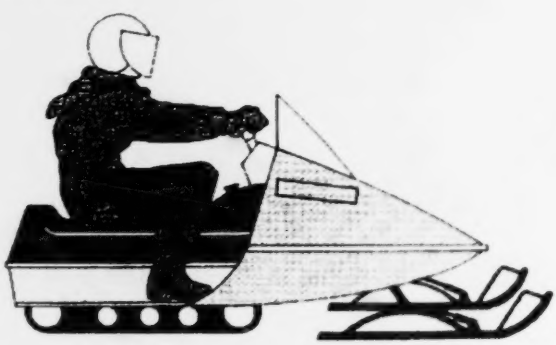
Use the engine stop/kill switch to shut your engine off. Remember to turn off the ignition key or switch if your snowmobile has one. This will prevent your battery from running down. By using the emergency stop/kill switch, you develop good habits for making an emergency stop.

Riding your snowmobile

To get on your snowmobile, first place one foot on the running board. Swing your other leg over the saddle or seat and place that foot on the other running board. This is much like mounting a horse. Always use the running boards to get on your snowmobile. It will help you get used to keeping your feet there while riding.

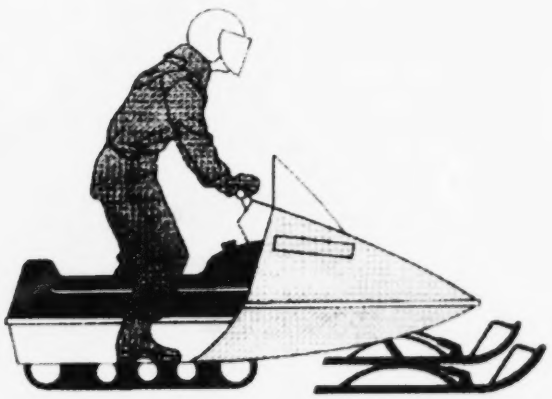
A snowmobile is a rider-active machine. To turn, climb, or descend, shift your weight. Shifting your weight gives you more traction for better control.

The four primary driving positions are sitting, standing, kneeling, and posting. The sitting position is the most common. Remember to keep your feet on the running boards at all times.



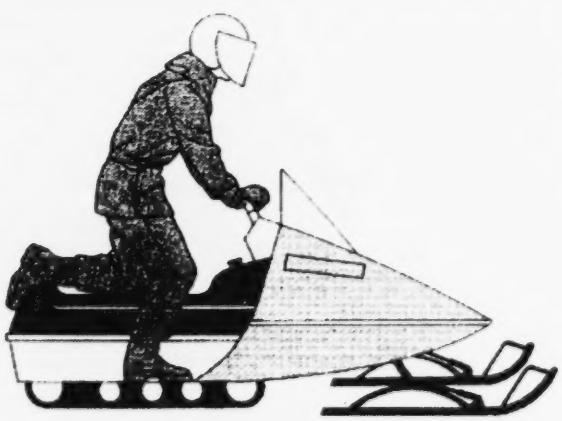
Sitting position.

The standing position can be a squat when traveling over uneven terrain such as moguls. In this semi-crouched position, your legs act like shock absorbers. Slow down when in this riding position. It does not allow you quick control in an emergency situation.



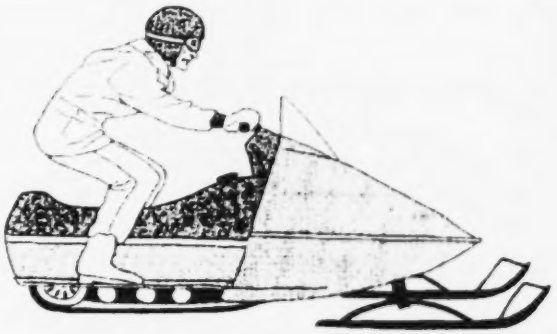
Standing position.

Kneeling puts you high on the seat and leaves you unprotected from the wind. Do not use this position at high speeds. Kneeling does allow you to transfer your weight quickly when turning in powder or on hills.



Kneeling position.

The fourth position is posting. It puts you lower than the standing position but higher than the sitting position. Your body is barely off the seat of the snowmobile. Your weight is on your feet, and your legs are bent to absorb the shock.

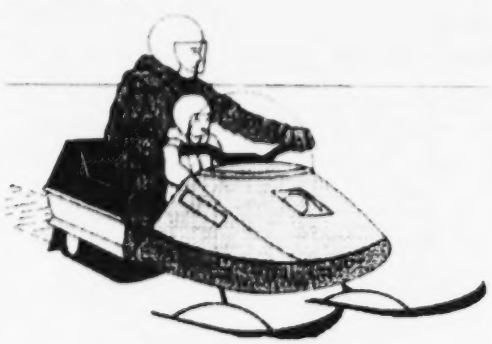


Posting position.

You will learn to use all four positions. Using the right position at the right time will help you ride more smoothly, stay in control, and turn more easily.

To turn your snowmobile, have both hands on the handgrips. Apply the throttle and lean into the turn from the seated, posted, or kneeling position. Use more power to turn in powder, less power on hard pack surfaces.

Carrying a passenger makes it hard to shift weight to maneuver your snowmobile. However, snowmobiles can carry two people safely under most riding conditions at safe speeds. The passenger should place both feet on the running boards and lean with the driver when turning.

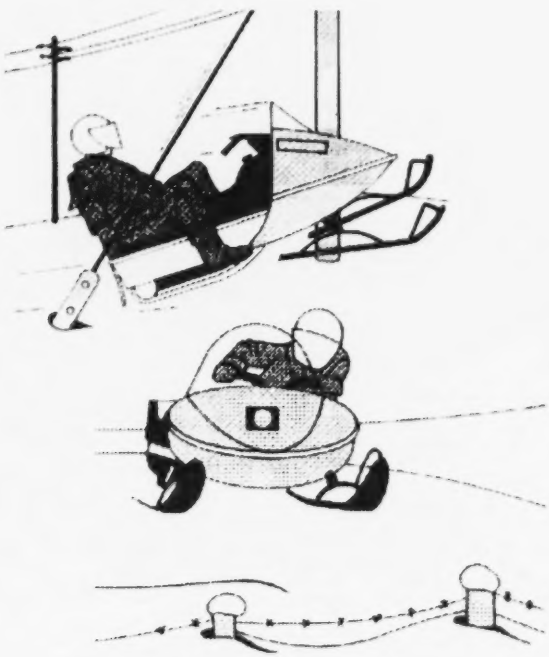


Get your parent's permission before carrying a passenger.

Use the seated position when carrying a passenger. Carrying a passenger across slopes, up or down steep hills, or across rough surfaces should be left to experienced drivers except in an emergency.

Riding at night

Riding your snowmobile at night may be a new experience for you. Make sure your lights are in good working order. Before you start, be sure to check the dim switch to see if high and low beams are working. Clean your headlight.



It is hard to see trail hazards at night.

Do not overdrive your headlights. Drive at speeds that allow you to stop when you see an unknown or dangerous object ahead. A good rule of thumb for night riding is to be able to stop within the distance that you can see. Always carry a flashlight for an emergency situation.

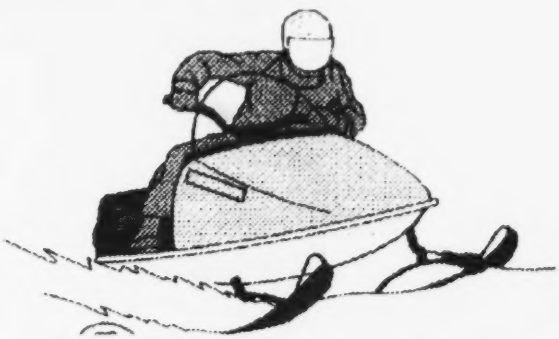
Riding in the daylight

Light conditions must be considered when riding on the trail. In bright sunlight, the terrain can appear fairly flat when, in fact, a gully or wash is there. This is an optical illusion created by light. To be safe, wear tinted eye protection in bright light and clear eye protection when it is cloudy. Remember to travel at a safe speed.

Where to ride

Not all riding areas are close to where you live. Sometimes you must haul your snowmobile to and from the area you plan to ride. For more information about hauling your snowmobile, read chapter 6 in the Preride Module.

Some winter OHV riding areas may be cropland the rest of the year. Riding on these areas can cause problems for farmers and landowners. Know who owns the land, and be sure you have the landowner's permission to ride in a particular area.



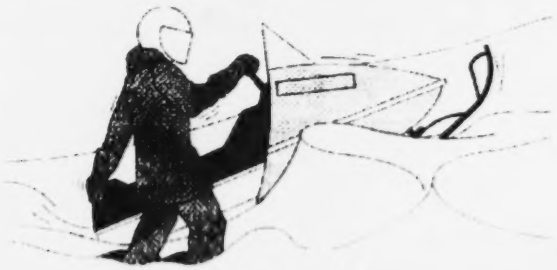
Get the landowner's permission before you ride.

Get to know your local snowmobile club members. By working with them, you can help preserve riding opportunities for yourself and others.

Remember that it is against the law to chase or harass wildlife while riding a snowmobile or any other OHV.

Snow conditions and terrain vary

Deep powder, slush, hard pack, and ice conditions exist throughout Utah. When your machine bogs down in deep snow, make as wide a turn as possible to get back into your track. Point your machine downhill when you stop to reduce the chance of getting stuck. Be sure to set your parking brake.



When you get stuck, do not over exert yourself.

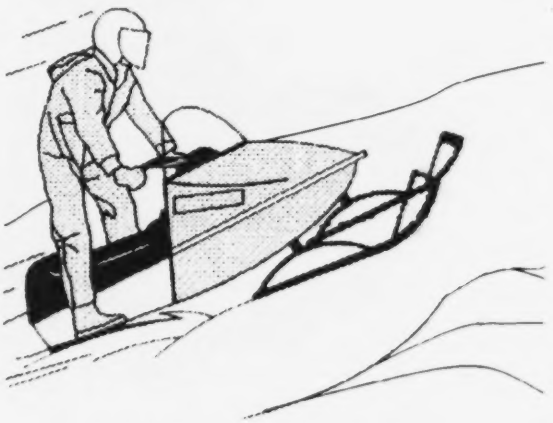
On hard pack surfaces, allow more time to stop. Apply your brakes smoothly and firmly. Traveling too fast and then trying to stop too quickly on hard pack snow will send the snowmobile spinning out of control.

Slushy snow can cause track clogging and steering problems. Stay alert to weather and snow conditions. Know the forecast.

Ice should be at least eight inches thick before you ride on it. Ice on Utah rivers and lakes can be weak, slushy, or have cracks in it. Stopping on ice is difficult because your snowmobile slides. Turning on ice is difficult because the track and skis will not grab the ice at high speeds. Go slowly and let off on the throttle.

If you are not sure about the safety of ice, stay off of it.

Since most of Utah's snowmobile areas are in the mountains, you must know how to travel on hills or slopes. Keep your weight into the hill. When going uphill, keep your weight forward and lean into the hill. Posting (weight on your feet, not your seat) is often the best riding position.



Lean into the hill as you go uphill.

When going downhill, sit back and keep your weight to the back. To stop or slow down when going downhill, pump the brakes and completely let off on the throttle. Be sure to keep the clutch engaged. A free-wheeling clutch will make it harder to stop.

When crossing or traversing hills, remember these things:

- Keep your weight uphill at all times. Lean or put both feet on the uphill running board.
- Maintain steady throttle. You may need more power in powder situations.
- Turn the skis slightly uphill to keep the machine tracking across the slope.

In the Skills Module, you must demonstrate and perform correctly the following skills:

- Mount
- Dismount
- Start and turn off engine
- Stop snowmobile (slow and emergency)
- Travel in a straight line
- Turns; sharp and quick turns
- Circles
- Figure eights
- Travel up and down hills; turn on hills
- Get unstuck on a hill
- Traverse hills
- Riding positions
- Hand signals (right, left, slow, stop)
- Negotiate stop signs and intersections
- Cross obstacles
- Trailride

SNOWMOBILE SKILLS MODULE
HOME STUDY QUIZ

Circle the correct answer.
(Answer key in back)

1. **The throttle on the snowmobile is generally located where?**
   A. On the right handgrip
   B. On the left handgrip
   C. On the running boards
   D. On the seat
2. **How does the oil get to the engine parts on a snowmobile?**
   A. Oil/fuel mix system
   B. Oil injection system
   C. Both
   D. None of the above
3. **How do you safely clear the snowmobile track?**
   A. Make sure no one is behind the machine.
   B. Get help.
   C. Lift the machine up.
   D. All of the above
4. **How do most snowmobiles start?**
   A. Pull start
   B. Key start
   C. A and B
   D. None of the above
5. **What is the best way to turn your snowmobile in powder snow?**
   A. Get enough speed.
   B. Shift your weight while turning the handlebar.
   C. Turn the handlebar only.
   D. Lean away from the turn.
6. **What should you remember to do when riding your snowmobile at night?**
   A. Wear a helmet.
   B. Turn on your lights.
   C. Wear proper clothing.
   D. All of the above
7. **The four primary driving positions are:**
   A. Posting, sitting, standing, and kneeling
   B. Sitting, standing, kneeling, and lying down
   C. Posting, standing, lying down, and sitting
   D. Standing, lying down, kneeling, and sitting
8. **How thick should ice be before you travel on it?**
   A. Four inches
   B. Five inches
   C. Six inches
   D. Eight inches
9. **Where should your weight be on your snowmobile when traversing hills?**
   A. Uphill
   B. Downhill
   C. It makes no difference.
   D. None of the above
10. **It is against the law to chase or harass wildlife while on a snowmobile.**
    A. True
    B. False

OFF-HIGHWAY MOTORCYCLE SKILLS MODULE

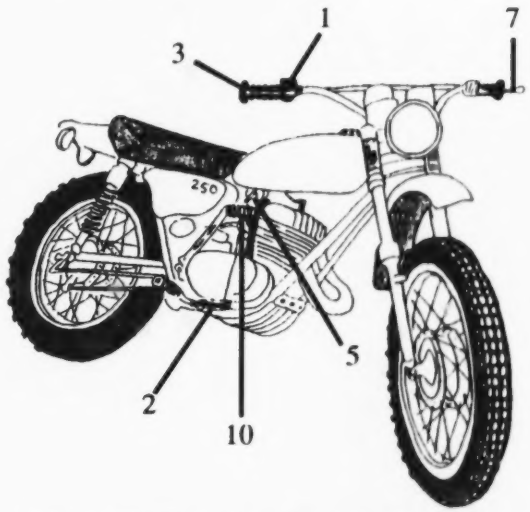
OFF-HIGHWAY MOTORCYCLE

SKILLS MODULE

To be a safe off-highway motorcycle driver, you must understand and master basic skills. This course will teach you to ride well and safely. Review the skills module section before you go to the range.

You have already learned about OHVs in general. Now you will learn some particular things about off-highway motorcycles.

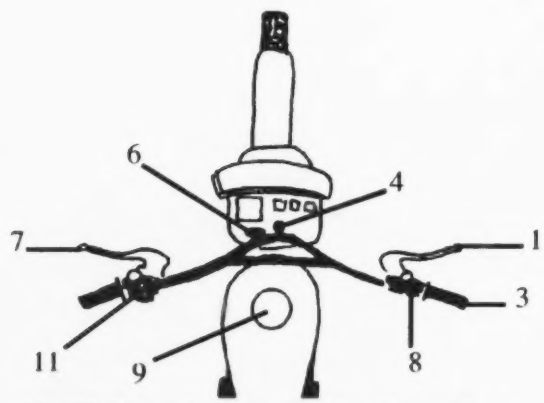
Your machine has an owner's manual. Read it carefully. An off-highway motorcycle is a rider-active machine. This course will teach you how to change speed and direction and how to drive on different kinds of terrain.



Identify the controls by matching the numbers.

Getting familiar with your motorcycle

Each off-highway motorcycle is a little different, but different models do have some things in common. Since the mid-1970s, the five major controls (clutch, front brake, rear brake, gear shift, and throttle) have been put in the same place on all motorcycles. Before you ride your motorcycle, become familiar with all of the controls. Make sure that they are in good working order.



Identify the controls by matching the numbers.

Identify these controls (if equipped):

1. Hand brake lever (s)
2. Foot brake lever or pedal
3. Throttle
4. Ignition switch
5. Fuel supply valve
6. Choke (primer)
7. Clutch
8. Engine stop switch
9. Gas cap/tank vent
10. Starter (pull, kick, electric)
11. Light hi/lo switch

Getting ready to ride

Off-highway riding puts a strain on your cycle even though it is built to be ridden on rough terrain. Always do a **T-CLOC** inspection (tires and wheels; controls and cables; lights and electrics; oil and fuel; chassis, chain, kickstand, and fork leaks) on your motorcycle before and after you ride.

T-CLOC

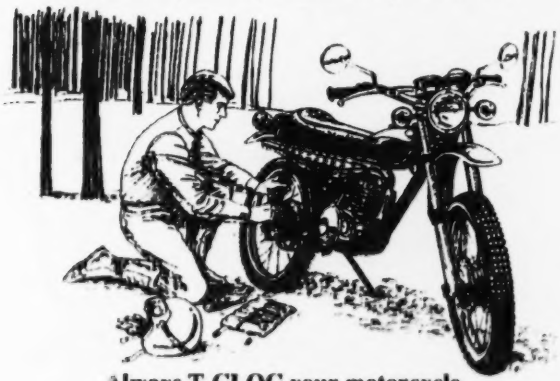
T - Tires and wheels

C - Controls and cables

L - Lights and electrical systems

O - Oil and fuel (oil injection)

C - Chassis, chain, kickstand, and forks



Always T-CLOC your motorcycle before you ride.

Most types of off-highway dirt bikes have a place to carry a tool kit. It is a good idea to carry your owner's manual with you. It is also a good idea to carry a tow rope. You can tow your motorcycle with another cycle if you break down and have no other way to move your cycle.

The operation of a motorcycle can be broken down into these main functions:

- Changing speed
  1. Increase
     a. Starting
     b. Shifting
  2. Decrease
     a. Slowing
     b. Stopping
- Changing direction
  1. Low speed
  2. Higher speed
- Negotiating terrain
  1. Climbing
  2. Descending
  3. Traversing

Mastering these skills will help you be a safe rider who has a great time riding off-highway motorcycles.

All motorcycles lean slightly when they are parked with the kickstand down. This makes them easy to straddle. To get on your motorcycle, stand on the left side, grasp the left handlebar with your left hand, and swing your right leg over the saddle. Grasp the right handlebar with your right hand.

To get on your motorcycle, use the correct procedure.

Body position

Like other OHVs, a motorcycle is rider-active. That means your body has to be in the correct position. Your feet must be on the foot pegs. Riding on the pegs with your knees bent is the best position for rough terrain.

The way you sit on a motorcycle is very important. Sit far enough forward so that your arms are slightly bent when you hold the handlegrips. By bending your arms at the elbow, you should be able to turn the handlebar without stretching.

Good body position is important.

The position of your hands is important for steering and controlling the throttle. It is also important for braking. Hold the handlegrips firmly. Use the handlebar to control the motorcycle, not to hang on to. Maintain a light touch on the controls, and use the handlebar to control the cycle. This will help you in rough terrain.

Take your grip with the right wrist down. This will keep you from accidentally giving the cycle too much gas. Riding on the foot pegs will give you a different feel of the controls than sitting on the cycle.

A slight bend in the knees and elbows improves control.

Your knees are also important in motorcycle riding. Keep your knees pressed lightly against the gas tank. This will help you "feel" the position of your motorcycle without losing your balance.

Keep your feet firmly on the foot pegs. Firm footing will help you keep your balance. Don't drag your foot on the ground except to keep your balance. You can lose control or be badly hurt if you catch your foot on a rock or log.

Good riding position includes your eyes. Look around and ahead all the time. Don't concentrate on one object or area. You can hit something you didn't even see.

Use FINE-C when starting your motorcycle.

Starting your motorcycle

Most off-highway motorcycles have a kickstart system. Check your owner's manual to see where your kickstart lever is located. Be sure you press the kickstart lever to the point you feel resistance before kicking through to start the engine. Check the throttle (gas control) position before kickstarting your motorcycle. To avoid over revving your engine, do not apply too much throttle.

To start your cycle, use the **FINE-C** process you learned in the preride module:

F - Fuel	Be sure fuel is on.
I - Ignition	Be sure ignition is on.
N - Neutral	Be sure your motorcycle is in neutral. Some motorcycles have an indicator light for neutral. If you cannot get your cycle into neutral, rock it while shifting gears.
E - Electrics	To start your motorcycle, the key must be in the start or on position. In addition, the kill switch must be in the run position.
C - Choke	When the engine is cold, use the choke until it runs smoothly. Then push the choke to the run position.

Stopping your motorcycle

You must be able to slow and stop your motorcycle with the brake. You will use both sitting and standing positions for this skill. The brake on the front wheel is the most effective brake for stopping. The front wheel and brake have the weight of the cycle and rider behind them.

To stop with the front brake, first let off on the throttle. Shift your weight forward to force the front wheel into the ground. Front brakes have more stopping power than back brakes so take advantage of the weight transfer. You can increase the stopping power by shifting your weight farther forward.

The back wheel and brake have nothing behind them to stop. The back wheel is always the most likely to lock-up. When riding in sand, the sand acts like a brake.

Practice using both brakes on all types of surfaces.

Use the engine stop/kill switch during normal and emergency stops. Remember to turn off the ignition key or switch if equipped. This will keep your battery from running down. By using the emergency stop/kill switch for normal stops, you will develop good habits in case you need to make an emergency stop.

Turning your motorcycle

Turning is a big part of riding a motorcycle. It involves weight shifting, braking, throttle control, and shifting gears. A safe way to learn to make turns is to practice at slow speeds.

Turning requires leaning and weight shifting.

"Outside weighting" is a way to make low-speed turns. Shift your weight away from the turning direction. For example, to make a right turn, move your body weight left. To turn left, shift to the right. Mastering this skill will take practice.

Sudden turns

You may not have enough time to stop on the trail to avoid an obstacle. If an object appears suddenly, you may have to make a quick turn. The key to making a quick turn is to lean quickly in the direction you wish to go. The sharper the turn, the more the motorcycle must lean.

To avoid some objects, you have to make quick turns.

To get the motorcycle to lean quickly, push on the inside of the handlegrip on the side you want to turn. For example, for a right turn, push right, lean right, go right. For a left turn, push left, lean left, go left. This will cause the front wheel to move slightly in the opposite direction that you wish to turn as your motorcycle continues to move straight ahead.

As the motorcycle begins to lean, keep pressure on the inside of the handlegrip in the direction of the lean. You don't have to think about it. Your instincts will make you press on the handlegrips to keep the motorcycle from falling over.

This exercise can be practiced and demonstrated on the range. While riding in a straight line, press the inside of the right handlegrip. You will notice the motorcycle turns to the right.

Speeding up and shifting gears

Speeding up and shifting gears involves shifting your body, controlling the throttle, and shifting gears. Shifting gears while seated and shifting gears while standing on the pegs feel different.

To speed up, your motorcycle must have good traction. Riding off-highway means riding over different kinds of terrain. Traction varies with different surfaces.

Give your cycle a little gas and shift your weight to the back for more traction. Give your cycle more gas and shift your weight forward to reduce traction. This may also cause your tires to spin. Too much gas combined with good traction can cause the front wheel to come off the ground. To prevent this, shift your weight forward and let off on the gas, or use the back brake.

Shifting gears involves safety as well as speed. Accidents can happen if you don't shift correctly. Slow down by letting off on the gas when you downshift. Speed up by increasing the gas when you upshift.

Always shift down to stop or to slow down for a turn. Make sure you slow down before shifting into a lower gear. If you are going too fast, your motorcycle will lurch and the back wheel will slide. This happens when you are going downhill and shift into first gear. If necessary, use your brakes to slow down enough to shift safely. Increase or decrease the gas smoothly while shifting gears either up or down.

Shift gears before going into a turn. This lets you reach a safe, controlled speed before making the turn and gives you better control of the motorcycle during the turn. Remember that a sudden change in power to the rear wheel can cause a skid.

Riding on hills

There are several things to remember when riding up, across, or down a hill.

Shift weight forward when riding uphill.

To ride uphill, keep your weight forward and your body pointed uphill. Always use a lower gear when approaching a hill. To ride downhill, keep your weight back, but point your body uphill. Use a low gear when going downhill to help slow you down.

Shift weight to the back when riding downhill.

Shift your weight to the front or back while standing on the foot pegs. Lean forward, over the handlebar, when going uphill. Lean to the rear of the motorcycle, and bend at the waist with your weight over the back fender, when going downhill.

How far you lean forward or backward depends on how steep the hill is. Each time you climb a hill, you will have to adjust your body position, gas control, and brake control for the best balance and traction.

Shifting your weight is an important skill to practice and learn for climbing hills. It will help prevent your front wheel from coming off the ground as you climb the hill. When the front wheel leaves the ground, you have no steering control and no front brake control.

Remember that moving your weight to the back of the motorcycle gives you better control of your front wheel brake when going downhill.

Riding across hills

Traversing, or riding across a hill, requires outside weighting. As you recall, outside weighting is also used in turns. The same method applies here, except that you will *not* turn the handlebar.

To traverse across a hill, lean the cycle uphill with your weight centered on the footpegs. You must be standing on the foot pegs. This increases traction by forcing the tires into the hill. At the same time, it keeps your body weight straight up and down. Maintain steady throttle control.

If you begin to lose control, simply let the bike go. Step off the bike on the uphill side. Leaning the cycle uphill lets you lay it down uphill if the wheels slip out from under you. Never get off the bike on the downhill side. You run the risk of having the cycle fall on top of you. How far you lean depends on how steep the slope is.

Turning on hills

The safest way to turn around on a hill is to:

1. Stop.
2. Lean over the crossbar.
3. Turn the handlebar all the way to the left.
4. Pump the rear brake and back up in short steps until the cycle is in a traversing position.
5. Walk the front wheel downhill by turning the handlebar from extreme left to extreme right until the cycle is pointing downhill.
6. Push off and go.

Small hills should be used to practice turning.

Riding off-highway is exciting, but you will not always have a nice wide trail to ride on. Be prepared for tight wooded areas, low protruding obstacles, and sudden changes in the contour of the land. Prepare for this by using **SIPDE**: **S**can, **I**dentify, **P**redict, **D**ecide, **E**xecute. (Refer to Preride Module.)

Prevent accidents

Riding off-highway motorcycles in Utah is often on dirt or gravel roads. These roads may also be open to cars and trucks. Most accidents involving motorcycles and other vehicles happen because the driver of the larger vehicle cannot see the motorcycle. Make yourself visible to other drivers in the following ways:

- Wear bright clothing that can be seen easily by other drivers.
- Use your lights at all times.
- Use hand signals when turning or stopping.
- Flash brake light when you slow to a stop.
- Ride in the portion of the road where other drivers are most likely to see you.
- Stay out of blind spots.
- Let the driver ahead see you.
- Help drivers at intersections see you.

Put safety first

Always put safety first when you are riding your off-highway motorcycle. Be aware of what is around or ahead of you while riding. Look for trouble "not to get into it, but to stay out of it."

Keep these safe riding tips in mind and practice them:

- Use **SIPDE**.
- Always wear your protective gear.
- Never ride alone.
- Be aware of where you are on the trail.
- Keep your head up and look ahead.
- Keep a safe distance between you and other OHVs whether they are in front, behind, or passing you.

Always allow yourself plenty of reaction time. Give yourself enough distance to stop, turn, slow down, speed up, or avoid an obstacle or another cycle. The best protection you have is distance - a cushion of space all around the motorcycle. If someone else makes a mistake, or if the terrain suddenly changes, or if an animal or another machine crosses your path, distance gives you time to react and to find a place to go.

Safe riding practices also include good visual habits. When focusing on one object, you tend to go where you are looking. You can actually hit the object you are focusing on. Total vision is a habit that must be practiced.

Passengers? Sometimes yes, sometimes no.

Before you let a passenger climb on your motorcycle, be sure it has footpegs, handholds, and a seat designed for two people. Passengers should wear the same protective gear as the driver. They should also know how the cycle works.

It may be dangerous to carry passengers in areas where there is deep mud, soft sand, steep hills, or downed logs. Ask your passenger to walk through difficult sections and meet you on the other side.

Because a motorcycle is rider-active, all your riding skills must be adjusted when you are carrying a passenger. Weight shift, balance, braking, turning, and acceleration will all be different.

Riding in a group

If you ride with a group of other people, you must all be careful not to get in each other's way. A large group makes passing difficult. Large groups tend to be separated easily. Those who are left behind, forget safety as they try to catch up. Waiting at all intersections and turns for the whole group to arrive is one way to stay closer together. If your group is larger than four or five riders, divide into smaller groups.

Make sure everyone knows the route. If a group member gets separated, he or she won't have to hurry to keep from getting lost or taking a wrong turn.

Keep a safe riding distance when riding in a group.

Plan ahead. If you are the leader, look ahead for changes. Give signals early so the word gets back to the other riders. Keep safe spacing between riders. On a trail, have each rider count to 10 after the previous rider is out of sight before starting. In more open areas, riders should wait until the previous rider can't be heard before starting.

Don't pair up. Never ride directly beside another rider. If one of you has to avoid an obstacle in the trail, there will be no place for the other one to go. Single-file formation is best for all off-highway riding. It helps when you enter or leave a trail, take curves, and turn.

Passing is not recommended on a trail. If you need to pass, do it one at a time. Make sure there is plenty of space for you and the rider you will be passing. Travel at a normal speed. Avoid sudden moves or changes in speed.

Learn to fall

The idea of falling from your motorcycle is scary! Over time, all riders fall at least once. But learning to fall the right way can help prevent serious injury.

Tuck and roll with the fall.

One way to keep from getting badly hurt when you fall is called the "tuck and roll":

1. Tuck your body into a ball-like position and roll as you hit the ground.
2. Land on a part of your body that is protected by pads.
3. Roll with the fall to absorb the shock.
4. Try not to extend your hands to break your fall.
5. Protect your arms and legs as you hit the ground. Keep them away from the bike.

Although the tuck and roll can help you avoid serious injury in an accident, it is limited by the terrain.

Off-highway surfaces

Off-highway motorcycle riding is done on sand, dirt, mud, snow, rock, and gravel. All of these surfaces affect the motorcycle's traction. Your motorcycle will handle differently on each one.

Sand: Most riders are careful in sand because the motorcycle feels unstable. The way to ride in sand is to skim the front wheel across the sand using power and rear weighting. As you increase your speed, the motorcycle's front wheel begins to skim the sand surface, and you shift your weight to the back of the motorcycle. Standing on the footpegs helps you shift your weight.

Increasing your speed gradually will allow the front wheel to "wander" left or right as it skims the surface. This is similar to the way a boat or slalom water skier "skims" across the water using the back of the boat or ski to steer. A motorcycle rider planing over sand can steer the rear wheel by shifting weight on the foot pegs.

Sand riding is unstable.

Learning to skim over the ground takes practice, but it is an important skill to learn. Using a lighter touch on the handlebar may also help you control your motorcycle over different kinds of terrain.

Surfaces with poor traction: You are more likely to fall on uneven surfaces. Remember this rule: Good traction = good handling, but poor traction = poor handling.

Different surfaces create different kinds of traction for the motorcycle. It can be hard to ride on gravel or loose dirt, mud or wet dirt, sand, ice or snow, and loose rocks. To ride safely on these surfaces:

1. *Reduce your speed.* Slow down before you reach a slippery surface. Your motorcycle needs more distance to stop on slippery surfaces. You want to prevent skidding and loss of control.
2. *Avoid sudden moves.* On wet or slippery surfaces, any sudden change in speed or direction can cause a skid. Gradually reduce speed, shift gears, turn, and brake.
3. *Use both brakes.* Use the front brake as well as the rear brake. When using both brakes, be sure not to lock the wheels. Remember not to squeeze the front brake lever too hard. The front brake is still the most effective one to use on low-traction surfaces.

To stop your motorcycle quickly when traction is poor, apply both brakes. Don't "grab" at the brake; apply it steadily and firmly. Apply the front brake as hard as you can without locking the front wheel. At the same time, apply the back brake *firmly*.

Do not apply brakes while in a turn. But if you need to stop quickly while turning, apply the rear brake firmly without locking up the rear tire. As the motorcycle's front wheel straightens out, apply the front brake firmly. Remember, if the front or rear wheel locks up when the motorcycle is turning, the wheel can slide sideways and you can fall over.

Slippery surfaces: Keep your motorcycle straight up and control your speed. Sometimes, you may need to put your foot down, skimming the ground to keep your balance. Be careful of hidden objects like stumps or rocks when you are skimming the ground with your foot.

Standing on the footpegs will absorb the shock.

Uneven surfaces: These are the most common type of off-highway terrain. To ride over uneven terrain, rise slightly off the seat with your weight on the foot pegs. Bend your elbows slightly to absorb shock. This position will put you in the best position for weight transfer and balance.

Obstacles: The suspension on most motorcycles can handle small obstacles. Rider skills are needed for larger obstacles. To cross an obstacle, raise the front wheel over the obstacle and let the back wheel climb it. This is called "lofting."

Example of good body position when crossing an obstacle.

To loft the front wheel, stand on the foot pegs with your weight slightly back. Push down on handlebars and then lift them. The front wheel will bounce up much like a ball would. Be careful not to give the cycle too much gas. Don't try to loft over obstacles higher than the cycle's axle.

Jumping over obstacles is a very advanced skill. It will not be taught in this course. Skills like this take many hours of hard practice. Do not try to jump your motorcycle until you are an experienced rider.

Riding at night

You and your motorcycle are hard to see at night. Your motorcycle has only one head light. Follow these safety tips for riding at night:

- Always use your light.
- Slow down. If you come upon an obstacle or unfamiliar terrain, slower speed gives you more time to react.
- Increase the distance between you and cycles in front of you.

In the skills module, you must demonstrate and perform correctly the following skills:

- Mount
- Dismount
- Start and turn off cycle
- Stop (slow and emergency)
- Travel in a straight line
- Turn (circles, figure eights, sharp turns, quick turns)
- Travel up and down hills; turn on hills; traverse hills
- Riding position
- Hand signals (right, left, slow, stop)
- Negotiate stop signs and intersections
- Cross obstacles
- Ride on trail

Practicing the different motorcycle skills will increase your fun and safety.

OFF-HIGHWAY MOTORCYCLE SKILLS MODULE

HOME STUDY QUIZ

Circle the correct answers.
(Answer key in back)

1. **What type of starter system do most off-highway motorcycles use?**
   A. Rope pull
   B. Electric
   C. Kick start
   D. Push button
2. **Turning your motorcycle involves weight shift, braking, throttle control, and shifting gears.**
   A. True
   B. False
3. **When slowing down, what else should you do when braking?**
   A. Down shift
   B. Upshift
   C. Increase gas
   D. Lean
   E. A, C, and D
4. **What is involved in riding your motorcycle downhill?**
   A. Keeping your weight back and uphill
   B. Keeping you weight forward
   C. Braking
   D. Throttle control
   E. A, C, and D
5. **What should your motorcycle have before carrying passengers?**
   A. Extra hand holds and footpegs
   B. Rear brake
   C. A large enough seat
   D. A and C
6. **When riding your motorcycle in sand, lightly increase your speed and shift your weight forward allowing the front wheel to skim over the sand.**
   A. True
   B. False
7. **When riding your cycle on uneven, wet, or slippery surfaces, follow these simple rules:**
   A. Reduce speed, avoid sudden moves, and use front brake.
   B. Reduce speed, avoid sudden moves, and use both brake.
   C. Avoid sudden moves, increase speed, and use rear brake.
   D. Increase speed, avoid sudden moves, and use front brake.
8. **The controlled lifting of the front wheel when crossing obstacles is called lifting.**
   A. True
   B. False
9. **To make your motorcycle lean quickly:**
   A. Turn the handgrip in the direction of the turn and lean into the turn.
   B. Push the handgrip in the opposite direction of the desired turn.
   C. Lean in the direction of the turn.
   D. Do nothing.

GLOSSARY

GLOSSARY

This glossary is for instructors and students who want to know more about popular words and descriptions unique to off-highway vehicles and the Utah Off-Highway Vehicle Act.

ALIGNMENT. The proper positioning or adjustment of parts.

ALL-TERRAIN TYPE I VEHICLE (ATV). Any motor vehicle 50 inches or less in width which has a dry unladen weight of 700 pounds or less, travels on three or more low-pressure tires, has a seat designed to be straddled by the operator, and is designed for or capable of travel over unimproved terrain.

ALL-TERRAIN TYPE II VEHICLE. Any other motor vehicle designed for or capable of travel over unimproved terrain. This term does not include golf carts, vehicles designed to carry disabled persons, vehicles not specifically designed for recreational use, or farm tractors.

ANSI. American National Standards Institute. An organization that publishes standards for helmet testing and performance.

ATC. All-terrain cycle. A registered trademark used by Honda to describe its three-wheeled ATV.

BANKED TURN. A curve that is graded or sloped so that the inside edge of the road or trail is lower than the outside edge.

BERM. A vertical edge or buildup of soil or snow around the outside of the turn.

BLAZER. Trail sign which indicates major changes in direction, rest area stop, or hazard area.

BOARD. Board of Parks and Recreation.

BODY ENGLISH. A deliberate shifting of body weight and position to accomplish ordinary off-highway vehicle maneuvers.

BODY WEIGHTING. See BODY ENGLISH.

BOGIE WHEELS. The wheels which press down on the track and keep the track in contact with the snow; part of the suspension system.

BONE-C. A process to remember the prestart routine for ATVs:

Brake - set parking brake
On - fuel and ignition on
Neutral
Engine stop switch
Choke

BRAKING DISTANCES. The distance required for a vehicle to come to a complete stop. Varies according to the speed at which the vehicle is traveling and the snow surface condition, if applicable.

CAMBER. The left or right hand tilt of the road or trail or path of travel.

CARBURETOR. The part of the engine where the fuel and air mix.

CHOKE. A valve which cuts down on the air intake of the engine, making the fuel/air mixture richer. Used when the engine is cold.

CLEATS. Pieces on a snowmobile which project from the track to make it grip the snow for traction.

COMBINATION CYCLE. See DUAL-PURPOSE CYCLE.

CORNICE. An overhanging mass of snow or ice usually on a ridge.

COUNTER WEIGHTING. See OUTSIDE WEIGHTING.

COUNTERSHAFT. The shaft in a transmission which drives the chain to the rear wheel; also called the output shaft.

DEALER. Any person engaged in the business of selling off-highway vehicles wholesale or retail.

DECELERATE. Slow down.

DECIBELS. Unit of sound.

DIVISION. Utah Division of Parks and Recreation.

DUAL-PURPOSE CYCLE. A motorcycle designed for both on- and off-highway riding.

ENDURO. A cross-country, off-highway motorcycle competition event based on maintaining a certain speed over difficult terrain.

EXHAUST MANIFOLD. A pipe which leads exhaust fumes from the engine to the muffler.

FACILITATOR. A division-designated person which issues nonresident, off-highway vehicle education certificates.

FINE-C. A process to remember the prestart routine for motorcycle and snowmobile:

Fuel
Ignition
Neutral
Engine stop/kill switch
Choke

FIXATION. Visual concentration on an object or area.

FORK. The mechanical assembly that holds the front wheel of an off-highway motorcycle or three-wheel ATV.

FUEL MIXTURE RATIO. See PREMIX.

FULL LOCK POSITION. When the handlebar is turned as far as possible in either direction.

GROUND CLEARANCE. The distance from the level ground to the lowest part of the OHV.

HAZARD. Anything which presents a danger to the OHV rider.

HIGHWAY. See STREET.

HUNG-UP. Becoming stuck due to insufficient ground clearance; causing the center of the rear axle to be held up by the ground and preventing the drive wheels from getting traction.

HYPOTHERMIA. A body condition involving the loss of internal heat which can cause slower thinking, poor coordination, unconsciousness, and death.

IDLE. The state of the engine when it is running but the machine is not moving.

IGNITION SWITCH. The key switch turns the OHV on or off. Some off-highway motorcycles use only a stop/kill switch.

IMPLEMENT OF HUSBANDRY. All-terrain type I vehicle, motorcycle, or snowmobile which is used by the owner or agent for agricultural operations.

INFORMATIONAL BLAZER. See BLAZER.

INSULATE. To keep warm by trapping a layer of warm air next to the body.

K-TURN. A method for turning around from a stop on a slope. It involves setting the parking brake, dismounting, turning the handlebar full lock, pumping the rear brake and rolling back until the OHV is sideways to the slope. Then the handlebar is turned downhill and the rear end pulled uphill before remounting and riding downhill.

KNOBBIES. Tires with many rubber protrusions or knobs for good off-highway traction.

LIGHT FRONT END. A condition that occurs when the OHV is traveling uphill, accelerating hard, or is heavily loaded in the rear. Too little weight on the front wheels or ski makes steering less precise.

LINE. The most effective path of travel. For example, an OHV rider may use an indirect path when negotiating a steep hill in order to avoid hazards.

LIP. Thin top edge of a razorback sand dune formation that looks solid but crumbles easily.

LOFTING. Controlled lifting of the front wheel of a motorcycle.

LOW-PRESSURE TIRE. Any pneumatic tire six inches or more in width, designed for use on wheels with rim diameter of 12 inches or less utilizing an operating pressure of 10 pounds per square inch or less as recommended by the vehicle manufacturer.

MANUFACTURER. Any one engaged in the business of manufacturing off-highway vehicles.

MOTOCROSS. Off-highway motorcycle competition event held over rough terrain on a closed course; normally run with timed segments called motos.

MOTOR VEHICLE. Every vehicle that is self-propelled.

MOTORCYCLE. Every motor vehicle having a saddle for the operator and designed to travel on not more than two tires.

OBSERVED TRIALS. Off-highway motorcycle competition event where the object is to ride over difficult obstacles without putting a foot on the ground.

OFF-HIGHWAY VEHICLE (OHV). Any snowmobile, all-terrain type I or type II vehicle, or motorcycle.

OPERATE. To control the movement of or otherwise use an off-highway vehicle.

OUTSIDE WEIGHTING. Motorcycle riding technique for slow-to-medium-speed turns using weight shift in opposite direction of turn.

OWNER. A person, other than a person with a security interest, having a property interest or title to an off-highway vehicle and entitled to the use and possession of that vehicle.

PEGS. Footpegs that support the motorcycle rider's feet.

PISTON. Part of the engine that is pushed down by the combustion of fuel.

PLANING. The act of moving across the surface without sinking.

PLAYBIKE. General term for off-highway motorcycles not intended for competition use.

POWER SLIDE. A cornering technique in which the rider unweights the rear wheels with body english and applies the throttle to induce controlled oversteer.

PREMIX. A gas/oil mix used in two-stroke engines.

PRIMARY DRIVE. Includes drive pulley (clutch), drive belt, and driven pulley on a snowmobile.

PRIMER. A manual pump on some off-highway vehicles which is used before starting to send gas from the tank to the carburetor.

PSI. Pounds per square inch. Abbreviation of an American unit of air pressure.

PUBLIC LAND. Land owned or administered by any federal or state agency or any political subdivision of the state.

QUAD. Slang term for the four-wheel ATVs from the Suzuki trade name Quadrunner.

RAZORBACK. A geologic feature formed where two bowl-shaped features lie next to each other in sand dunes or snowdrifts; a very sharp ridge with steep slopes on both sides.

READING THE TERRAIN. Looking well ahead during off-highway riding to correctly anticipate hazards and choose the best line of travel (see also SIPDE).

RED LINE. The maximum safe engine speed limit recommended by the manufacturer.

REGISTER. The act of assigning a registration number to an off-highway vehicle.

ROADWAY. See STREET.

RPM. Revolutions per minute. Commonly used to describe the engine speed at the crankshaft.

RUNNING BOARD. The footrests which runs along the bottom of both sides of the snowmobile chassis.

SECONDARY DRIVE. Includes two sprockets and a drive chain enclosed in a case. It links the primary drive to the drive axle which turns the track of a snowmobile.

SNOWGROOMER. Tracked vehicle used to maintain winter OHV trails.

SEMIAUTOMATIC TRANSMISSION. A transmission which requires shifting but has an automatic clutch.

SIGHT STEERING. An OHV control technique: Where you look is where you go.

SINGLE TRACK. A vehicle such as a motorcycle whose wheels are mounted one behind the other.

SIPDE. A process of remembering the mental process of reading terrain:

Scan
Identify
Predict
Decide
Execute

SKI TOURING. Cross-country skiing, usually on trails.

SNOW BLINDNESS. Temporary blindness caused by exposure to sunlight reflected off snow.

SNOWMOBILE. Any motor vehicle designed for travel on snow or ice and steered and supported in whole or part by skis, belts, cleats, runners, or low-pressure tires.

SPROCKET. A round wheel with metal or plastic teeth which turns the drive chain or track.

STOP/KILL SWITCH. The emergency switch on an OHV that stops the engine from running.

STREET. The entire width between boundary lines of every way, when any part of it is open to public vehicular travel.

SWITCHBACK. A sharp curve that leads into another sharp curve in the opposite direction.

T-CLOC. A process to remember a preride inspection routine:

Tires and wheels; tracks for snowmobiles
Controls and cables
Lights and electrics
Oil and fuel
Chassis, chain and drive shaft; belt for snowmobiles

TARGET FIXATION. When the OHV rider over concentrates on a hazard and may actually steer towards it.

TERRAIN. A tract of land.

THROTTLE. The control found on the handlebar which increases or decreases the vehicle speed.

THROTTLE RESPONSE. The engine's ability to change RPM quickly and smoothly when the throttle position is varied, especially when it is opened quickly.

TILT-BED TRAILER. A trailer which tilts down for easy loading and unloading.

TONGUE. A rigid bar which extends between the trailer bed and the towing vehicle.

TOPOGRAPHIC MAP. A map which shows the shape of the land including the variations in elevations.

TRACK TENSIONS. The amount of free play or tightness of the track of a snowmobile.

TRACTION. Tread friction between the ground and the tires.

TRANSMISSION. The series of gears, shafts, belts, chains, and sprockets used to transmit motive force from the engine output shaft to the drive wheels.

TRAVERSE. To move horizontally across a slope.

TREAD LIGHTLY. United States Forest Service program encouraging responsible use of OHVs and environmental awareness.

TROUBLESHOOTING. Locating the source of mechanical trouble.

TUNDRA. A delicate arctic terrain which is easily damaged by motor vehicle tires.

UNDERSTEER. The handling of an ATV whose front wheel(s) tends to skid, causing plowing during hard cornering.

UNWEIGHT. To lighten one wheel or one end of an OHV.

WEAR RODS. Replaceable, hard metal pieces attached to the bottom of the snowmobile skis that aid in steering on hard packed or icy surfaces.

WEIGHT DISTRIBUTION. The sharing of vehicle weight among the wheels, usually expressed as a percentage.

WEIGHT TRANSFER. The temporary change in ritler weight distribution during maneuvering.

WIND-CHILL FACTOR. The drop in temperature which your body feels because of the wind and the speed at which you are traveling.

ANSWER KEY

ANSWER KEY

PRERIDE MODULE

CHAPTER 1 1. A 2. A 3. B 4. C 5. E

CHAPTER 2 1. B 2. E 3. E 4. A

CHAPTER 3 1. B 2. B 3. A 4. A 5. D 6. C 7. B 8. C

CHAPTER 4 1. D 2. A 3. A 4. E 5. A 6. C

CHAPTER 5 1. A 2. D 3. C 4. A

CHAPTER 6 1. A 2. B 3. D 4. D 5. A

CHAPTER 7 1. B 2. B 3. A 4. A 5. B 6. A

CHAPTER 8 1. D 2. A 3. A 4. E 5. C

ATV SKILLS MODULE

1. A 2. A 3. A 4. A 5. A 6. A 7. A 8. A 9. A 10. B

11. A 12. A 13. A

SNOWMOBILE SKILLS MODULE

1. A 2. C 3. D 4. C 5. A 6. D 7. A 8. D 9. A 10. A

OFF-HIGHWAY MOTORCYCLE SKILLS MODULE

1. C 2. A 3. A 4. E 5. D 6. B 7. B 8. B 9. A

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